PB87-111852

# Water Resources Data for Virginia, Water Year 1985

(U.S.) Geological Survey, Richmond, VA

25 Aug 86

U.S. Department of Commerce
National Technical Information Service
NTIS

PB87-111852

U.S. DEPARTMENT OF THE INTERIOR
March 3 1849

# Water Resources Data
# Virginia
# Water Year 1985

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-85-1
Prepared in cooperation with the State of Virginia
and with other agencies

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA. 22161

# CALENDAR FOR WATER YEAR 1985

## 1984

### OCTOBER

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## 1985

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### SEPTEMBER

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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

# Water Resources Data
# Virginia
# Water Year 1985

by Byron J. Prugh, Jr., Fred J. Easton, and Dennis D. Lynch

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-85-1
Prepared in cooperation with the State of Virginia
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

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1986

# PREFACE

The annual hydrologic data report of Virginia is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey and the Virginia Water Control Board who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsiblity for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following offices contributed significantly to the preparation and completion of this report:

U.S. Geological Survey, Richmond, VA
U.S. Geological Survey, Marion, VA
U.S. Geological Survey, Charlottesville, VA
Virginia Water Control Board, Charlottesville, VA

This report was prepared in cooperation with the State of Virginia and with other agencies under the general supervision of Herbert J. Freiberger, Chief of the Mid-Atlantic District, and Gary S. Anderson, Chief, Virginia Office.

50272-101

**REPORT DOCUMENTATION PAGE**

1. REPORT NO. USGS/WRD/HD-86/255

2.

3. Recipient's Accession No. PB87 111852/AS

4. Title and Subtitle

Water Resources Data - Virginia
Water Year 1985

5. Report Date August 25, 1986

6.

7. Author(s) Byron J. Prugh, Jr., Fred J. Easton, and Dennis D. Lynch

8. Performing Organization Rept. No. USGS-WDR-VA-85-1

9. Performing Organization Name and Address

U.S. Geological Survey, Water Resources Division
3600 West Broad Street, Room 606
Richmond, Virginia 23230

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address

U.S. Geological Survey, Water Resources Division
3600 West Broad Street, Room 606
Richmond, Virginia 23230

13. Type of Report & Period Covered Annual - Oct. 1, 1984, to Sept. 30, 1985

14.

15. Supplementary Notes

Prepared in cooperation with the State of Virginia and with other agencies

16. Abstract (Limit: 200 words)

Water resources data for the 1985 water year for Virginia consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 190 gaging stations, stage only at 1 gaging station, stage and contents at 10 lakes and reservoirs, water quality at 41 gaging stations and 1 well, and water levels at 58 observation wells. Also included are data for 78 crest-stage partial-record stations. Locations of these sites are shown on figures 6 and 7. Additional water data were collected at various sites not involved in the systematic data-collection program, such as, discharge-measurement data collected at 53 low-flow partial-record stations, and miscellaneous hydrologic data collected at 97 measuring sites and 12 water-quality sampling sites. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

17. Document Analysis a. Descriptors

*Virginia, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement: No restriction on distribution.

This report may be purchased:
National Technical Information Service
Springfield, VA 22161

19. Security Class (This Report) UNCLASSIFIED

20. Security Class (This Page) UNCLASSIFIED

21. No. of Pages 413

22. Price

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

# CONTENTS

Page

- Preface iii
- List of gaging stations, in downstream order, for which records are published vii
- List of ground-water wells, by county or independent city, for which records are published xi
- Introduction 1
- Cooperation 1
- Records collected by the State of Virginia 2
- Summary of hydrologic conditions 2
  - Streamflow 2
  - Ground-water levels 6
  - Chemical quality of streamflow 6
- Special networks and programs 9
- Explanation of the records 10
  - Station identification numbers 10
    - Downstream order system 10
    - Latitude-longitude system 10
  - Records of stage and water discharge 11
    - Data collection and computation 11
    - Data presentation 12
    - Identifying estimated daily discharge 14
    - Accuracy of the records 14
    - Other records available 15
  - Records of surface-water quality 15
    - Classification of records 15
    - Arrangement of records 15
    - On-site measurements and sample collection 15
    - Water temperature 16
    - Sediment 16
    - Laboratory measurements 16
    - Data presentation 16
    - Remark codes 17
  - Records of ground-water levels 18
    - Data collection and computation 18
    - Data presentation 18
  - Records of ground-water quality 19
    - Data collection and computation 19
    - Data presentation 19
- Access to WATSTORE data 19
- Definition of terms 20
- Publications on Techniques of Water-Resources Investigations 28
- Selected U.S. Geological Survey reports on water resources in Virginia 30
- Station records, surface water 33
  - Discharge at partial-record stations and miscellaneous sites 338
    - Crest-stage partial-record stations 338
    - Low-flow partial-record stations 348
    - Miscellaneous sites 353
  - Analyses of samples collected at water-quality partial-record stations and miscellaneous sites 364
- Station records, ground water 368
  - Ground-water levels 368
  - Quality of ground water 389
- Index 391

## ILLUSTRATIONS

Page

Figure 1. Annual mean discharge at selected gaging stations.............................. 3
2. Discharge during 1985 water year compared with median discharge for period 1951-80 for four representative gaging stations............................ 4
3. Monthly ground-water levels at key observation wells............................ 7
4. Annual median concentration of total phosphorus for period 1974-85 in James River at Cartersville, Va............................................ 9
5. System for numbering wells and miscellaneous sites.............................. 11
6. Map of Virginia showing location of data-collection stations.................... 32
7. Map of Virginia showing location of high-flow partial-record stations........... 34

## TABLES

March monthly mean flow and flow statistics for four representative gaging stations........ 5
April monthly mean flow and flow statistics for five representative gaging stations........ 5
Annual mean flow for six representative gaging stations.................................. 6
Trends in discharge, annual suspended-sediment load, specific conductance, and temperature at four representative gaging stations............................... 8

## SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

[Letters after station name designate type of data: (d) discharge, (c) chemical, (b) biological,
(m) microbiological, (t) water temperature, (s) sediment,
(e) elevation, gage heights, or contents]

Page

- NORTH ATLANTIC SLOPE BASINS
  - NASSAWADOX CREEK BASIN
  - Nassawadox Creek:
    - Guy Creek (head of Holly Grove Cove) near Nassawadox (d) ..... 38
  - POTOMAC RIVER BASIN
  - Potomac River:
    - Back Creek:
      - Hogue Creek near Hayfield (d) ..... 39
    - Opequon Creek near Berryville (d) ..... 40
    - Abrams Creek near Winchester (d) ..... 41
    - North River (head of Shenandoah River) near Stokesville (d) ..... 42
    - North River near Burketown (d) ..... 43
      - Middle River near Verona (d) ..... 44
        - Christians Creek near Fishersville (d) ..... 45
      - Middle River near Grottoes (d) ..... 46
      - South River near Waynesboro (d) ..... 47
      - South River near Dooms (d) ..... 48
      - South River at Harriston (d) ..... 49
    - South Fork Shenandoah River:
      - Madison Run:
        - White Oak Run near Grottoes (d) ..... 50
    - South Fork Shenandoah River (continuation of North River) near Lynnwood (d) ..... 52
    - South Fork Shenandoah River near Luray (d) ..... 53
    - South Fork Shenandoah River at Front Royal (d,c) ..... 54
      - North Fork Shenandoah River at Cootes Store (d) ..... 57
        - Smith Creek near New Market (d) ..... 58
      - North Fork Shenandoah River at Mount Jackson (d) ..... 59
      - North Fork Shenandoah River near Strasburg (d,c) ..... 60
        - Cedar Creek near Winchester (d) ..... 63
        - Passage Creek near Buckton (d) ..... 64
    - Shenandoah River at Millville, WV (d,c,m,s) ..... 65
    - Catoctin Creek at Taylorstown (d) ..... 68
  - Potomac River at Point of Rocks, MD (d,t,s) ..... 69
    - Goose Creek near Middleburg (d) ..... 72
    - Goose Creek near Leesburg (d) ..... 73
    - Difficult Run near Great Falls (d) ..... 74
  - Potomac River near Washington, DC (d) ..... 75
  - Potomac River at Chain Bridge at Washington, DC (c,m,s)) ..... 76
    - Accotink Creek near Annandale (d) ..... 79
    - Cedar Run (head of Occoquan River) near Warrenton (d) ..... 80
    - Cedar Run near Catlett (d) ..... 81
    - Cedar Run near Aden (d) ..... 82
      - Broad Run at Buckland (d) ..... 83
      - Broad Run near Bristow (d) ..... 84
      - Bull Run near Catharpin (d) ..... 85
        - Cub Run near Bull Run (d) ..... 86
      - Bull Run near Manassas Park (d) ..... 87
  - Quantico Creek near Dumfries (d,c,s) ..... 88
    - South Fork Quantico Creek near Independent Hill (d,c,s) ..... 90
    - South Fork Quantico Creek at Camp 5, near Joplin (d,c,s) ..... 92
    - South Fork Quantico Creek near Dumfries (d,c,s) ..... 94
    - Aquia Creek near Garrisonville (d) ..... 96
  - GREAT WICOMICO RIVER BASIN
  - Great Wicomico River:
    - Crawley Creek:
      - Bush Mill Stream near Heathsville (d) ..... 97
  - RAPPAHANNOCK RIVER BASIN
  - Rappahannock River near Warrenton (d) ..... 98
    - Hazel River:
      - Thornton River:
        - Battle Run near Laurel Mills (d) ..... 99
    - Hazel River at Rixeyville (d) ..... 100
  - Rappahannock River at Remington (d,c,t,s) ..... 101
    - Mountain Run near Culpeper (d) ..... 106
    - Rapidan River near Ruckersville (d) ..... 107
      - Robinson River near Locust Dale (d) ..... 108
    - Rapidan River near Culpeper (d) ..... 109

Page

NORTH ATLANTIC SLOPE BASINS--Continued
RAPPAHANNOCK RIVER BASIN--Continued

Rappahannock River near Fredericksburg (d,c,m,s)........ 110
Cat Point Creek near Montross (d)........ 114
Hoskins Creek near Tappahannock (d)........ 115
Piscataway Creek near Tappahannock (d)........ 116

PIANKATANK RIVER BASIN

Dragon Swamp (head of Piankatank River) at Mascot (d)........ 117

WARE RIVER BASIN

Beaverdam Swamp (head of Ware River) near Ark (d)........ 118

YORK RIVER BASIN

North Anna River:
Contrary Creek near Mineral (d)........ 119
North Anna River (head of York River) near Partlow (d)........ 120
North Anna River near Doswell (d)........ 121
North Anna River at Hart Corner near Doswell (d)........ 122
Little River near Doswell (d)........ 123
South Anna River near Ashland (d)........ 124
Pamunkey River (continuation of North Anna River) near Hanover (d,c,m,s)........ 125
Totopotomoy Creek near Studley (d)........ 129
Po River (head of Mattaponi River) near Spotsylvania (d)........ 130
Mattaponi River near Bowling Green (d)........ 131
Mattaponi River near Beulahville (d,c,m,s)........ 132
York River:
Ware Creek near Toano (d)........ 136

SOUTH ATLANTIC SLOPE BASINS
JAMES RIVER BASIN

Jackson River (head of James River) near Bacova (d,t)........ 137
Back Creek near Sunrise (d,t)........ 140
Back Creek at Sunrise (d,t)........ 143
Little Back Creek near Sunrise (d,t)........ 146
Back Creek near Mountain Grove (d,t)........ 149
Lake Moomaw near Hot Springs (e)........ 152
Jackson River below Gathright Dam, near Hot Springs (d,c,t)........ 153
Jackson River at Falling Spring (c,t)........ 162
Jackson River at Filtration Plant, at Covington (t)........ 165
Dunlap Creek near Covington (d)........ 167
Jackson River below Dunlap Creek, at Covington (d)........ 168
Potts Creek near Covington (d)........ 169
Cowpasture River:
Bullpasture River at Williamsville (d)........ 170
Cowpasture River near Clifton Forge (d)........ 171
James River at Lick Run (d)........ 172
Craig Creek:
Johns Creek at New Castle (d)........ 173
Craig Creek at Parr (d)........ 174
Catawba Creek near Catawba (d)........ 175
James River at Buchanan (d,c,t)........ 176
Calfpasture River (head of Maury River) above Mill Creek, at Goshen (d)........ 180
Maury River at Rockbridge Baths (d)........ 181
Kerrs Creek near Lexington (d)........ 182
Maury River near Buena Vista (d)........ 183
James River at Holcombs Rock (d)........ 184
James River at Bent Creek (d)........ 185
Tye River near Lovingston (d)........ 186
Piney River at Piney River (d)........ 187
Buffalo River near Tye River (d)........ 188
Rockfish River near Greenfield (d)........ 189
James River at Scottsville (d)........ 190
Hardware River below Briery Run, near Scottsville (d)........ 191
Slate River near Arvonia (d)........ 192
South Fork Rivanna River:
Mechums River near White Hall (d)........ 193
Moormans River near Free Union (d)........ 194
Buck Mountain Creek near Free Union (d)........ 195
South Fork Rivanna River near Charlottesville (d)........ 196
North Fork Rivanna River near Proffit (d)........ 197
Rivanna River at Palmyra (d)........ 198
Willis River at Lakeside Village (d)........ 199
James River at Cartersville (d,c,m,s)........ 200
Fine Creek at Fine Creek Mills (d)........ 204

Page

SOUTH ATLANTIC SLOPE BASINS--Continued

JAMES RIVER BASIN--Continued

- James River--Continued
  - James River & Kanawha Canal near Richmond (d) 205
- James River near Richmond (d) 206
  - Falling Creek near Chesterfield (d) 207
  - Appomattox River:
    - Holiday Creek near Andersonville (d,c,m,s) 209
    - Buffalo Creek near Hampden Sydney (d) 212
  - Appomattox River at Farmville (d) 213
  - Appomattox River at Mattoax (d) 214
    - Deep Creek near Mannboro (d) 215
  - Appomattox River at Matoaca (d,c,m,s) 216
  - Chickahominy River near Providence Forge (d,c) 219
  - Chickahominy River above Walkers Dam, at Walkers (c,m) 221
    - Diascund Creek Reservoir off Timber Swamp, near Walkers (c) 223
    - Diascund Creek Reservoir off pump station, near Walkers (c,m) 225
    - Little Creek Reservoir infall near Norge (c) 228
    - Little Creek Reservoir (north) near Norge (c) 229
    - Little Creek Reservoir (north central) near Norge (c,m) 230
    - Little Creek Reservoir (northeast) near Norge (c,m) 233
    - Little Creek Reservoir (south central) near Norge (c) 234
    - Little Creek Reservoir (west) near Norge (c) 236

GREAT DISMAL SWAMP BASIN

- Cypress Swamp at Cypress Chapel (d) 237
- Lake Drummond in Great Dismal Swamp (e) 238

CHOWAN RIVER BASIN

- Nottoway River (head of Chowan River) near Burkeville (d) 239
- Nottoway River near Rawlings (d) 240
- Nottoway River near Stony Creek (d) 241
  - Stony Creek near Dinwiddie (d) 242
- Nottoway River near Sebrell (d,c,m,s) 243
  - Assamoosick Swamp near Sebrell (d) 246
  - Blackwater River near Dendron (d) 247
  - Blackwater River at Zuni (d) 248
  - Blackwater River near Franklin (d,c,m,s) 249
- Chowan River:
  - North Meherrin River near Lunenburg (d) 252
  - Meherrin River near Lawrenceville (d) 253
    - Great Creek near Cochran (d) 254
  - Meherrin River at Emporia (d,c,m,s) 255
  - Fountains Creek near Brink (d) 258

ROANOKE RIVER BASIN

- South Fork Roanoke River near Shawsville (d) 259
- Roanoke River at Lafayette (d) 260
- Roanoke River at Roanoke (d) 261
  - Tinker Creek near Daleville (d) 262
- Roanoke River at Niagara (d) 263
  - Back Creek near Dundee (d) 264
  - Blackwater River near Rocky Mount (d) 265
- Smith Mountain Lake near Penhook (e) 266
  - Pigg River near Sandy Level (d) 267
- Leesville Lake near Leesville (e) 268
  - Goose Creek near Huddleston (d) 269
- Roanoke (Staunton) River at Altavista (d,c,t) 270
  - Big Otter River near Evington (d) 274
- Roanoke (Staunton) River at Brookneal (d) 275
  - Falling River near Naruna (d) 276
  - Cub Creek at Phenix (d) 277
- Roanoke (Staunton) River at Randolph (d,c) 278
  - Dan River:
  - Talbott and Townes Reservoirs near Kibler (e) 281
  - Dan River near Francisco, NC (d) 282
    - South Mayo River near Nettleridge (d) 283
      - North Mayo River near Spencer (d) 284
    - Smith River:
    - Philpott Lake near Philpott (e) 285
    - Smith River near Philpott (d) 286
    - Smith River at Bassett (d) 287
    - Smith River at Martinsville (d) 288
    - Smith River at Eden, NC (d) 289

Page

SOUTH ATLANTIC SLOPE BASINS--Continued
ROANOKE RIVER BASIN--Continued
Roanoke River--Continued
Dan River--Continued
Sandy River near Danville (d) .......... 290
Dan River at Danville (d) .......... 291
Dan River at Paces (d,c,m,s) .......... 292
Banister River:
Georges Creek near Gretna (d) .......... 295
Banister River at Halifax (d) .......... 296
Hyco River near Denniston (d) .......... 297
John H. Kerr Reservoir near Boydton (e) .......... 298
Allen Creek near Boydton (d) .......... 299
OHIO RIVER BASIN
Ohio River:
KANAWHA RIVER BASIN
South Fork New River (head of Kanawha River) near Jefferson, NC (d) .......... 300
New River near Galax (d,c,t) .......... 301
Chestnut Creek at Galax (d) .......... 304
Reed Creek:
Glade Creek at Grahams Forge (d) .......... 305
Reed Creek at Grahams Forge (d) .......... 306
Big Reed Island Creek near Allisonia (d) .......... 307
New River at Allisonia (d) .......... 308
Claytor Reservoir near Radford (e) .......... 309
Little River at Graysonton (d) .......... 310
New River at Radford (d) .......... 311
Walker Creek at Bane (d) .......... 312
Wolf Creek near Narrows (d) .......... 313
New River at Glen Lyn (d,c,t,m,s) .......... 314
Bluestone River at Falls Mills (d) .......... 318
BIG SANDY RIVER BASIN
Levisa Fork (head of Big Sandy River) at Big Rock (d) .......... 319
Levisa Fork below Fishtrap Dam, near Millard, KY (d) .......... 320
Russell Fork at Haysi (d) .......... 321
North Fork Pound River Lake at Pound (e) .......... 322
North Fork Pound River at Pound (d) .......... 323
Cranes Nest River near Clintwood (d) .......... 324
John W. Flannagan Reservoir near Haysi (e) .......... 325
Pound River below Flannagan Dam, near Haysi (d) .......... 326
TENNESSEE RIVER BASIN
French Broad River (head of Tennessee River):
South Fork Holston River at Riverside, near Chilhowie (d) .......... 327
South Fork Holston River near Damascus (d,c) .......... 328
Middle Fork Holston River near Meadowview (d) .......... 331
Beaver Creek at Bristol (d) .......... 332
North Fork Holston River near Saltville (d) .......... 333
Tennessee River:
Clinch River at Richlands (d) .......... 334
Clinch River at Cleveland (d) .......... 335
Clinch River above Tazewell, TN (d) .......... 336
Powell River near Jonesville (d) .......... 337
Discharge at partial-record stations and miscellaneous sites .......... 338
Crest-stage partial-record stations .......... 338
Low-flow partial-record stations .......... 348
Special study and miscellaneous sites .......... 353
Analyses of samples collected at partial-record, special study, and miscellaneous sites ... 364

# GROUND-WATER WELLS, BY COUNTY OR INDEPENDENT CITY, FOR WHICH RECORDS ARE PUBLISHED

Page

ACCOMACK COUNTY
  Well 67M2........ 368
ALBEMARLE COUNTY
  Well 43N1........ 368
APPOMATTOX COUNTY
  Well 40G1........ 368
  Well 41H2........ 369
ARLINGTON COUNTY
  Well 53V1........ 369
  Well 54V3........ 369
BUCKINGHAM COUNTY
  Well 41H1........ 370
  Well 41H3........ 370
  Well 41H4........ 370
COLONIAL HEIGHTS (INDEPENDENT CITY)
  Well 51G1........ 371
FAIRFAX COUNTY
  Well 52U4........ 371
  Well 52V2........ 371
FRANKLIN (INDEPENDENT CITY)
  Well 55B22........ 372
  Well 55B66........ 372
  Well 55B67........ 372
HALIFAX COUNTY
  Well 39C1........ 373
HOPEWELL (INDEPENDENT CITY)
  Well 52G1........ 373
ISLE OF WIGHT COUNTY
  Well 55B16........ 374
  Well 55B35........ 374
  Well 55B36........ 375
  Well 55B45........ 375
JAMES CITY COUNTY
  Well 56F1........ 375
KING AND QUEEN COUNTY
  Well 56J11........ 376
  Well 57J3........ 376
KING WILLIAM COUNTY
  Well 56J2........ 376
  Well 56J18........ 377
LOUDOUN COUNTY
  Well 49Y1........ 377
  Well 50W4C........ 377
LOUISA COUNTY
  Well 45N1........ 378
  Well 45N4........ 378
  Well 45N5........ 378
  WELL 45N6........ 379
  Well 46N1........ 379
MONTGOMERY COUNTY
  Well 27F2........ 379
NELSON COUNTY
  Well 39K1........ 380
NEW KENT COUNTY
  Well 55H1........ 380
NORFOLK (INDEPENDENT CITY)
  Well 61C1........ 380
ORANGE COUNTY
  Well 45P1........ 381
PRINCE WILLIAM COUNTY
  Well 49U1........ 381
  Well 49V1........ 381
  Well 51S7........ 382
PULASKI COUNTY
  Well 25E2........ 382
ROANOKE (INDEPENDENT CITY)
  Well 31G1........ 382
ROCKBRIDGE COUNTY
  Well 35K1........ 383
ROCKINGHAM COUNTY
  Well 41Q1........ 383

## GROUND-WATER WELLS, BY COUNTY OR INDEPENDENT CITY, FOR WHICH RECORDS ARE PUBLISHED

Page
SOUTHAMPTON COUNTY
Well 51B3 ..... 384
Well 54C1 ..... 384
SUFFOLK (INDEPENDENT CITY)
Well 57B8 ..... 384
Well 57B9 ..... 385
Well 58B13 ..... 385
Well 58B235 ..... 385
Well 58C53 ..... 386
Well 58C56 ..... 386
SURRY COUNTY
Well 56E1 ..... 387
WESTMORELAND COUNTY
Well 55P5 ..... 387
Well 55P9 ..... 387
Well 56N1 ..... 388
YORK COUNTY
Well 57G2 ..... 388
Quality of ground water ..... 389

# WATER RESOURCES DATA - VIRGINIA, 1985

## INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Virginia each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Virginia."

This report series includes records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 190 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; water quality at 41 gaging stations and 1 well; and water levels at 58 observation wells. Also included are data for 78 crest-stage partial-record stations. Locations of these sites are shown on figures 6 and 7. Additional water data were collected at various sites not involved in the systematic data-collection program, such as, discharge-measurement data collected at 53 low-flow partial-record stations, and miscellaneous hydrologic data collected at 97 measuring sites and 12 water-quality sampling sites. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

This series of annual reports for Virginia began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Virginia were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 6A and 6B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports, Federal Center, Bldg. 41, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report VA-85-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the Office Chief at the address given on the back of the title page or by telephone (804) 771-2427.

## COOPERATION

The U.S. Geological Survey and agencies of the State of Virginia have had cooperative agreements for the collection of water-resource records since 1930. Organizations that assisted in collecting the data in this report through cooperative agreement with the Survey are:

Virginia Water Control Board, Richard N. Burton, executive director.
Virginia Department of Highways and Transportation, Harold C. King, commissioner.
City of Alexandria, Douglas Harman, city manager.
City of Newport News, C. C. Crowder, director, Department of Public Utilities.
City of Roanoke, Kit B. Kiser, director, Utilities and Operations.
Southeastern Public Service Authority, Durwood S. Curling, executive director.
James City County, Wayland Bass, director, Department of Public Works.
University of Virginia, Dr. James N. Galloway.
Northern Virginia Planning District Commission, John W. Epling, executive director.

Assistance with funds or services was given by the U.S. Army Corps of Engineers in collecting records for 60 gaging stations and 4 water-quality stations throughout the State, and by the National Park Service in collecting records for 4 gaging stations and 13 water-quality stations in the Prince William Forest project.

Under a cooperative agreement covering the Tennessee River basin, the Tennessee Valley Authority provided financial assistance for the operation of 5 gaging stations, the records for which are published herein. Assistance was also provided by the Water Quality Office, Environmental Protection Agency. Agencies that aided in collecting records are the Appalachian Power Company, Virginia Power, City of Danville, and City of Radford.

Organizations that provided data are acknowledged in station descriptions.

## RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 98 gaging stations and 19 index wells operated by the Virginia Water Control Board. These records are published as provided and are acknowledged in the "COOPERATION" paragraph of each individual station. The Virginia Water Control Board is under the direction of Richard N. Burton, executive director. Published material for the gaging-station records and the ground-water wells is supplied, respectively, through the Division of Water Resources Planning and Management, William L. Woodfin, Jr., director of operations.

## SUMMARY OF HYDROLOGIC CONDITIONS

Streamflows in Virginia were consistently below average for most of the 1985 water year. Flows for the year averaged less than 80 percent of normal in much of the State and less than 60 percent of normal in most of the northern and eastern Piedmont, the Coastal Plain, and the Eastern Shore (figure 1). Below-normal flows prevailed throughout the year. For the ten-month period October 1984 through July 1985, only one month--February--had above-normal streamflows (figure 2).

Beginning in October, average flows were below normal across most of the State except in the central Piedmont, along the South Fork Shenandoah River, and in the Big Sandy River basin. Some of the lowest flows for the year for streams in the Tennessee and Big Sandy River basins occurred in October before runoff, during the last week of the month, caused stream levels to rise slightly.

Streamflows in November were near normal in the northern and western part of the State but were below normal in the eastern part and along the Virginia-North Carolina State line.

In December, the area of the State with below-normal flows increased to include the Big Sandy, Tennessee, and New River basins in the southwest. Flows were near normal along the Shenandoah River and in the upper James River basin.

By January, the entire State was experiencing below-average streamflows except for a small area in the Chowan River basin in the southeast. Annual low flows were established for a number of streams in the upper New River and upper Roanoke River basins during January.

Due to runoff from three storms, streamflows for February were above average throughout most of the State for the first time in 5 months. In the Shenandoah River basin, flows were in the upper 25 percent of historical monthly flows for the month. Annual peak flows were recorded for most streams west of the Blue Ridge and in the northern part of the State during February. Snowmelt runoff contributed to the high flows in the western parts of the State.

By March, streamflows had dropped to below normal again and were in the lower 25 percent of historical monthly flows for March. New record low monthly flows were set in the Dan River basin. Many streams east of the Blue Ridge observed the second lowest flows of record for March, exceeded only by those observed during major droughts in the 1930's and early 1980's.

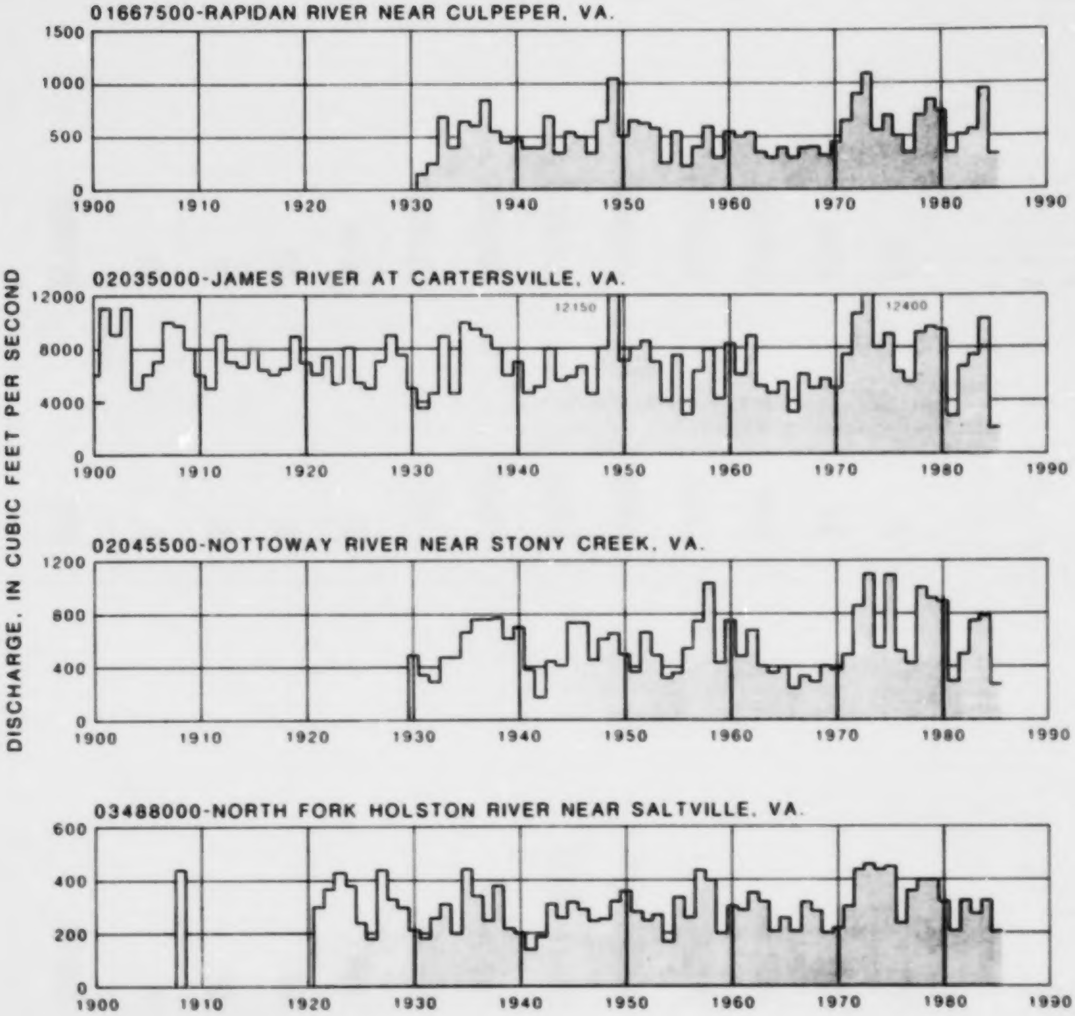


Figure 1.-- Annual mean discharge at selected gaging stations.

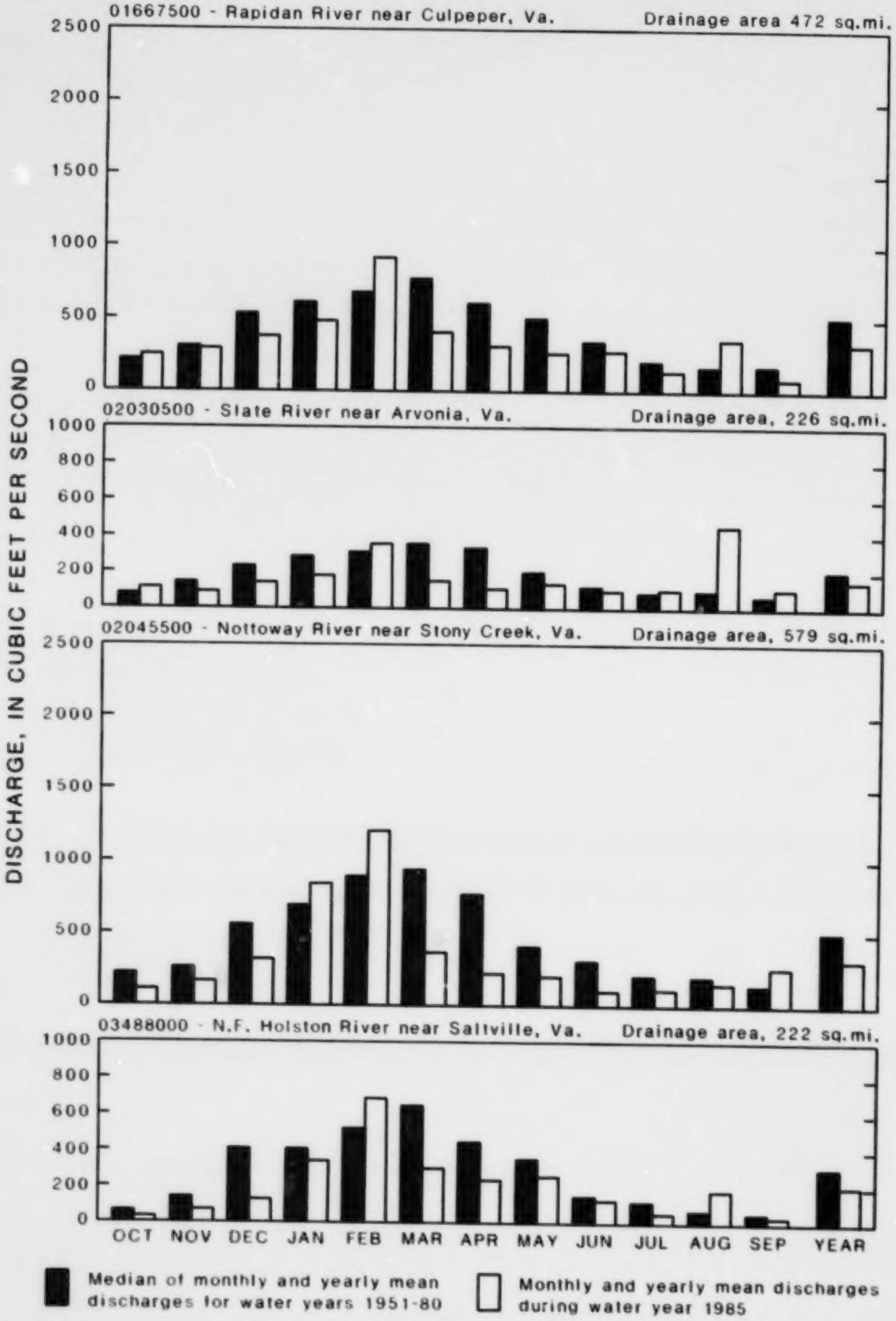


Figure 2.-- Discharge during 1985 water year compared with median discharge for period 1951-80 for four representative gaging stations.

| Gaging Station | Basin | Mean flow March 1985 (cfs) | Rank | Year record low occurred | Length of record (years) |
|---|---|---|---|---|---|
| Dan River at Danville, Va. | Roanoke | 1,240 | 1 | 1985 | 51 |
| New River at Allisonia, Va. | New | 2,285 | 2 | 1931 | 56 |
| Rappahannock River at Remington, Va. | Rappahannock | 460 | 2 | 1981 | 43 |
| Slate River near Arvonia, Va. | James | 138 | 2 | 1981 | 59 |

April had no significant rainfall and most flows were in the lower 25 percent of historical monthly flows for the month. New record low monthly flows were again established for streams in the Dan River basin. Many streams in southern and eastern Virginia had the second lowest flows on record for April, exceeded only by those resulting from droughts in 1942, 1966, and 1981.

| Gaging Station | Basin | Mean flow April 1985 (cfs) | Rank | Year record low occurred | Length of record (years) |
|---|---|---|---|---|---|
| Dan River at Danville, Va. | Roanoke | 1,070 | 1 | 1985 | 51 |
| New River at Allisonia, Va. | New | 2,140 | 2 | 1942 | 56 |
| Russell Fork near Haysi, Va. | Big Sandy | 190 | 3 | 1942 | 59 |
| Rappahannock River at Remington, Va. | Rappahannock | 324 | 2 | 1981 | 43 |
| Nottoway River near Sebrell, Va. | Chowan | 473 | 2 | 1966 | 44 |

Streamflows in the Shenandoah Valley, upper James River basin, and along the eastern slopes of the Blue Ridge increased slightly in May, moving out of the lower quartile of monthly flows, but still below average for the month.

No significant rainfall occurred during June throughout most of the State. Flows in the lower Shenandoah River basin were above average for the first time since February, but in the remainder of the State, they were below normal for the fourth consecutive month. Flows in the southern Piedmont were the lowest for the month of June since 1964.

The dry conditions continued into July with most of the streams in the central, southern, and eastern parts of the State recording their lowest flows for the year. Streamflows in the upper James River, South Fork Shenandoah River, and Big Sandy River basins were slightly above average for the month. In the New and Tennessee River basins, however, flows for July were the lowest in 15 years.

A strong reversal in flow trends occurred in August in most of the State, except in a narrow band along the Virginia-Maryland State line when above-normal flows occurred because of heavy rains associated with Hurricane Danny. On the Piedmont, flows in tributaries to the James, Dan, and Roanoke Rivers were the highest for August since 1955. The average monthly flow in the James River was the highest since Hurricane Camille in 1969. In contrast, flows in the upper Rappahannock River basin averaged 75 percent below normal and were the lowest for August since 1966. Maximum annual peak flows of streams in the central and southern parts of the State occurred during August in response to Hurricane Danny. Just prior to the passage of Hurricane Danny, annual minimum flows occurred in streams in the central part of the State.

Flows decreased during September, except in southeastern Virginia where heavy rains associated with Hurricane Gloria raised streamflows to their highest levels since 1979. Flows in the southwest returned to below-normal conditions and reached their lowest levels for September since 1969. Annual minimum flows for most streams in northern and southeastern Virginia were observed before the arrival of Hurricane Gloria. Streams in the southeast increased from annual lows to annual highs as Gloria passed through.

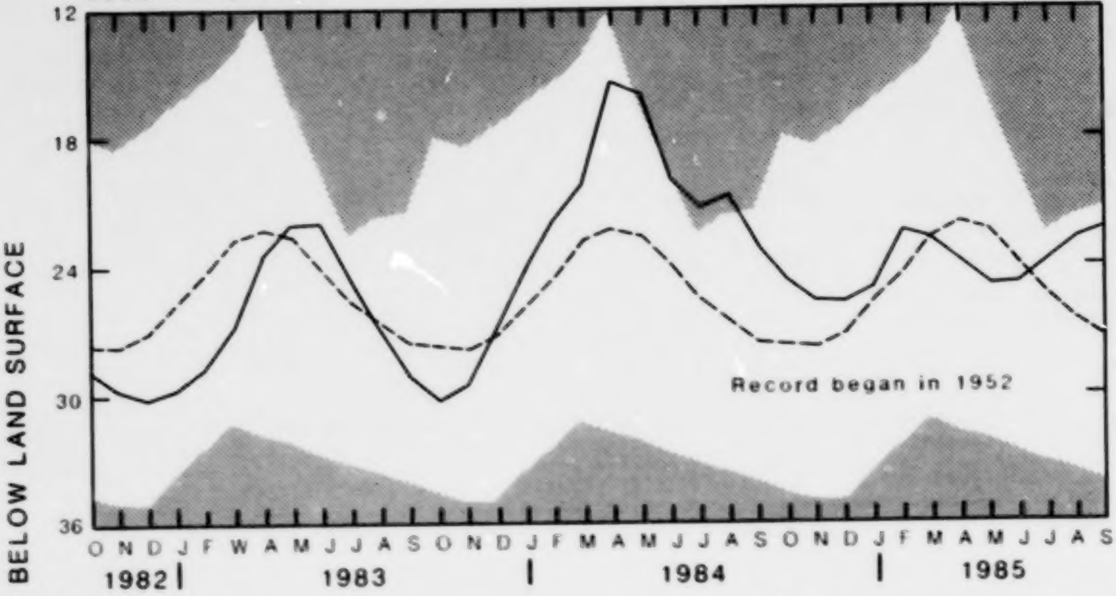
In summary, streamflows during the 1985 water year in Virginia were characterized by below-normal flows interrupted occasionally by runoff from tropical storms. The following table shows annual flow conditions at six representative sites across the State:

| Gaging Station | Part of State | Annual mean flow for 1985 (cfs) | Percent of median annual flow | Length of record (years) |
|---|---|---|---|---|
| S.F. Shenandoah River at Front Royal, Va. | Northwestern | 1,120 | 78 | 62 |
| Rapidan River near Culpeper, Va. | Northeastern | 340 | 66 | 55 |
| Slate River near Arvonia, Va. | Central | 162 | 73 | 59 |
| James River at Buchanan, Va. | Western | 1,990 | 81 | 87 |
| N.F. Holston River near Saltville, Va. | Southwestern | 195 | 65 | 66 |
| Nottoway River near Stony Creek, Va. | Southeastern | 316 | 63 | 56 |

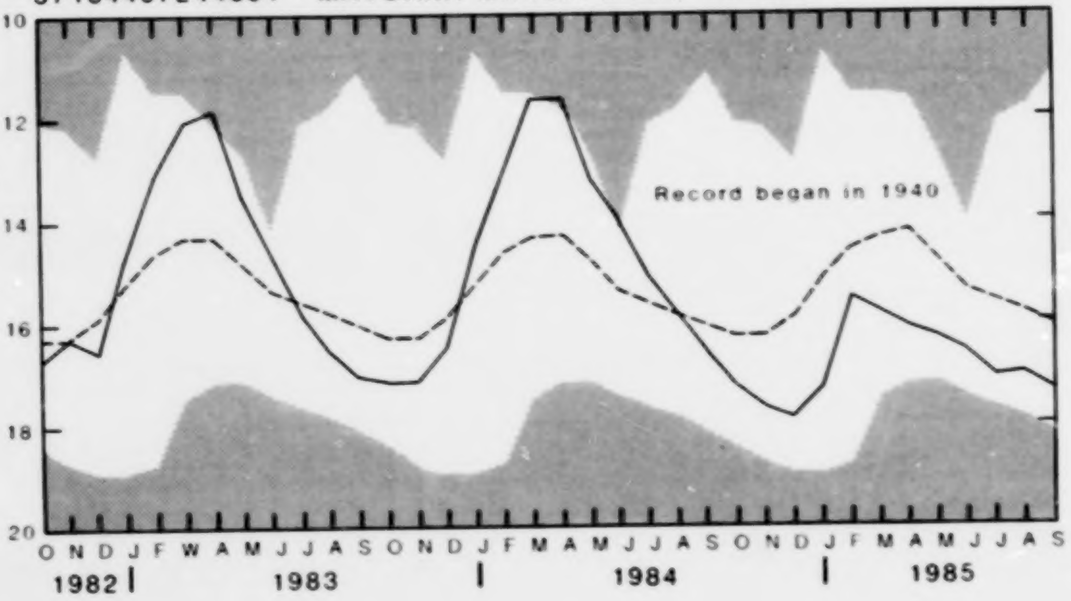
Ground-water levels at the beginning of the 1985 water year were several feet above normal in shallow index wells in central and northern Virginia. In northern Virginia, the normal seasonal variation in water levels was superimposed on a downward trend, and by the end of the water year, water levels were about 1 foot below normal for that time of year. In central Virginia, a downward trend at the Tyler well was reversed by infiltration from heavy rainfall, especially that associated with Hurricane Danny in August (figure 3). Water levels in the Matoaka Manor well, on the southern Piedmont at Colonial Heights, did not show any significant recharge from either Hurricane Danny in August or Hurricane Gloria in September. Water levels in this well were 1 to 2 feet below normal for the entire water year (figure 3). No new record highs or lows were established in the shallow index wells during the 1985 water year.

Dissolved-solids concentrations at most surface-water stations were above normal in the 1985 water year due to below-normal flows. Specific conductance, an indicator of dissolved-solids concentration, was greater than the mean for the previous 10 years at three of the four index stations shown in the table below. Specific conductance was near normal at the fourth index station, James River at Buchanan.

380217078133701 - TYLER WELL, LOUISA COUNTY, VA.



37164407244601 - MATOAKA MANOR WELL, COLONIAL HEIGHTS, VA.



| | |
|---|---|
| UNSHADED AREA | Range between highest and lowest recorded monthly water levels, prior to the indicated year. |
| SOLID LINE | Near monthend water level for the indicated year. |
| DASHED LINE | Average of the recorded monthly water levels, prior to the indicated year. |

Figure 3.-- Monthly ground-water levels at key observation wells.

| | Mean discharge (cfs) | | Annual suspended-sediment load (tons) | | Mean specific conductance (uS/cm) | | Mean water temperature (°C) | |
|---|---|---|---|---|---|---|---|---|
| Gaging station | Previous 10 years | 1985 | Previous 10 years | 1985 | Previous 10 years | 1985 | Previous 10 years | 1985 |
| Rappahannock River at Remington, Va. | 796 | 334 | 148,400 | 43,900 | 68 | 75 | 14.5 | 15.5 |
| James River at Buchanan, Va. | 2,590 | 1,987 | --- | --- | 285 | 280 | 14.5 | 15.5 |
| New River at Glen Lyn, Va. | 5,500 | 3,307 | --- | --- | 141 | 173 | 14.5 | 16.0 |
| Roanoke River at Altavista, Va. | 1,700 | 1,241 | --- | --- | 141 | 156 | 15.0 | 15.0 |

Surface-water temperatures at the four index stations in the 1985 water year averaged 1°C above the mean for the previous 10 years. Water temperatures equaled the 10-year mean at Roanoke River at Altavista and averaged 1.5 degrees above the 10-year mean at New River at Glen Lyn. The minimum temperature at the four index stations ranged from 0.0°C to 2.5°C and occurred in the month of January. The maximum temperature ranged from 26°C to 30°C and occurred in the months of July and August.

The suspended-sediment load at Rappahannock River at Remington was about 43,900 tons in the 1985 water year; this is 30 percent of the mean load for the previous 10 years and reflects the lower-than-normal flows during the year and the small number of storm events. Nearly half of the annual sediment load (21,100 tons) occurred on February 12 in association with the largest storm event of the year. Ninety percent of the annual load came during only two percent of the days.

The median concentration of total phosphorus as P (an essential nutrient for algal growth) at the 10 National Stream-Quality Accounting Network (NASQAN) stations throughout the State was 0.06 mg/L in water year 1985. Orthophosphorus as P had a median concentration of 0.03 mg/L. However, median concentrations of total phosphorus at James River at Cartersville and Dan River at Paces were 0.16 mg/L and 0.19 mg/L, respectively, which is five to six times greater than the median concentration at the other eight NASQAN stations. The high concentration of total phosphorus in the James River appears to be at least partly due to recent changes in point-source discharges or agricultural activities in the drainage basin. As seen in figure 4, and verified with a flow-adjusted seasonal Kendall test, the total phosphorus concentration has nearly doubled since 1974 and appears to be increasing at a rate of six percent a year. This upward trend may have consequences on the future quality of the tidal James River and parts of the Chesapeake Bay.

Dissolved oxygen averaged 91 percent of saturation at the 10 NASQAN stations during the year, with a mean concentration of 9.5 mg/L. Of the 78 dissolved oxygen measurements made at these 10 stations during the 1985 water year, only one value below 5.0 mg/L was recorded. This occurred on September 3 when a dissolved oxygen concentration of 4.7 mg/L was measured at Blackwater River near Franklin.

The concentrations of trace metals (including: arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium) in all samples collected from the 10 NASQAN stations were well below the U.S. Environmental Protection Agency standards for safe drinking water. In most cases, concentrations were less than one-tenth of the standards. However, concentrations of dissolved iron and dissolved manganese reached relatively high concentrations in several of these rivers. Dissolved iron concentrations in excess of 1,000 ug/L were measured, on at least one occasion, at Mattaponi River near Beulahville, Nottoway River near Sebrell, and Blackwater River near Franklin. Dissolved manganese concentrations in excess of 200 ug/L were also measured at the Mattaponi River and Blackwater River sites. Although these concentrations of iron and manganese in water do not present a human health problem, they can produce an objectionable taste and stain laundered clothes.

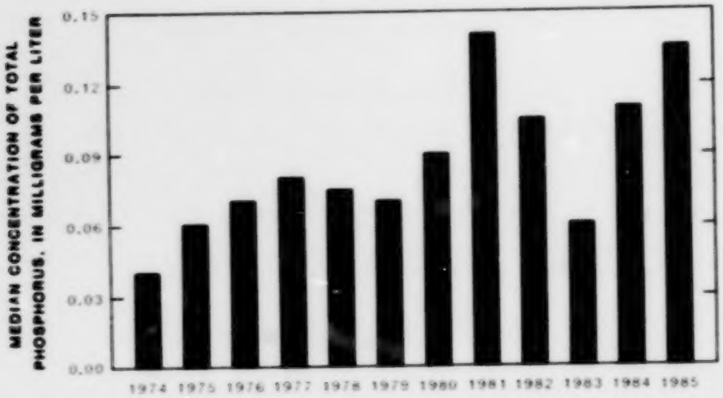


Figure 4.-- Annual median concentration of total phosphorus for period 1974-85 in James River at Cartersville, Va.

The median concentrations of fecal coliform and fecal streptococcal bacteria at the 10 NASQAN stations were 48 and 120 colonies per 100 milliliters, respectively. Of the 10 NASQAN stations, the Dan River had the highest concentrations of both bacteria. On December 6, 1984, the concentration of fecal coliform bacteria was 3,600 colonies per 100 milliliters and the concentration of fecal streptococcal bacteria was 4,500 colonies per 100 milliliters. Rappahannock River near Fredericksburg had the lowest concentrations of both bacteria, with median concentrations less than 20 colonies per 100 milliliters.

## SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream-Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Radiochemical Program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

## EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1985 water year that began October 1, 1984, and ended September 30, 1985. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 6 and 7. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

### Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. In Virginia, the "downstream order" system is used for surface-water stations and the "latitude-longitude" system is used for wells.

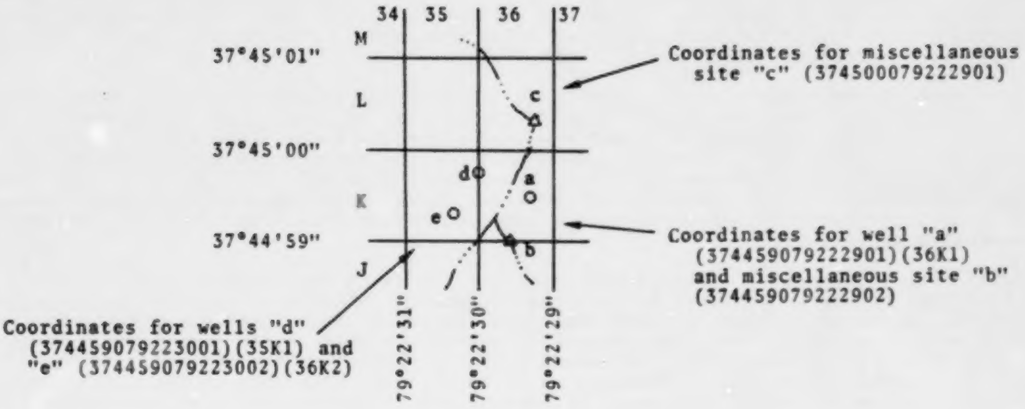
#### Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 03176500, which appears just to the left of the station name, includes the two-digit Part number "03" plus the six-digit downstream-order number "176500." The Part number designates the major river basin; for example, Part "03" is the Ohio River basin.

#### Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description.



Coordinates for miscellaneous site "c" (374500079222901)

Coordinates for well "a" (374459079222901)(36K1) and miscellaneous site "b" (374459079222902)

Coordinates for wells "d" (374459079223001)(35K1) and "e" (374459079223002)(36K2)

Figure 5. System for numbering wells and miscellaneous sites

A second well-numbering system used in Virginia utilizes 7 1/2-minute quadrangles within the State. The quadrangles are numbered from west to east, and lettered from south to north, omitting the letters "I" and "O." The designation for each quadrangle is determined by the method "Read Right, Up." Wells are numbered serially within each quadrangle. This local well number is shown immediately after the primary well number.

Well records furnished by the State of Virginia also include the well number that is based on an indexing system used by the Virginia Water Control Board.

## Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device, and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 6 and 7.

## Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

## Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and equal to or greater than a selected base discharge are presented under this heading. The peaks equal to or greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

## Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

## Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 $ft^3/s$; to the nearest tenth between 1.0 and 10 $ft^3/s$; to whole numbers between 10 and 1,000 $ft^3/s$; and to 3 significant figures for more than 1,000 $ft^3/s$. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

### Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Virginia Office of the Mid-Atlantic District. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the offices whose addresses are given on the back of the title page of this report.

## Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

### Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" , as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

### Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

### On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" which appears at the end of the introductory text. Detailed information on collecting, treating, and shipping samples may be obtained from the Virginia Office of the Mid-Atlantic District.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the Virginia Office of the Mid-Atlantic District whose address is given on the back of the title page of this report.

## Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at the time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Virginia Office of the Mid-Atlantic District.

## Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

## Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

## Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily, are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

## Remark Codes

The following remark codes may appear with the water-quality data in this report:

| PRINTED OUTPUT | REMARK |
|---|---|
| E | Estimated value |
| > | Actual value is known to be greater than the value shown |
| < | Actual value is known to be less than the value shown |
| K | Results based on colony count outside the acceptance range (non-ideal colony count) |
| L | Biological organism count less than 0.5 percent (organism may be observed rather than counted) |
| D | Biological organism count equal to or greater than 15 percent (dominant) |
| & | Biological organism estimated as dominant |

## Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Virginia are shown in figure 6.

### Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the 7 1/2-minute topographic map quadrangles within the State. (See page 11 for a more detailed explanation.)

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

### Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

## Records of Ground-Water Quality

Records of ground-water quality in this report differ from other types of records in that, for most sampling sites, they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes, one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

### Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed at the end of the introductory text. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

### Data Presentation

The records of ground-water quality are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water-level records. Data for quality of ground water are listed alphabetically by County and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

## ACCESS TO WATSTORE DATA

The National WATer Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from the offices whose addresses are given on the back of the title page.

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

## DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

*Fecal streptococcal bacteria* are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

*Bed material* is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

*Biochemical oxygen demand* (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms such as bacteria.

*Biomass* is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

*Ash mass* is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ($g/m^3$), and periphyton and benthic organisms in grams per square meter ($g/m^2$).

*Dry mass* refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

*Organic mass* or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

*Wet mass* is the mass of living matter plus contained water.

*Bottom material*: See Bed material.

*Cells/volume* refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

*Chemical oxygen demand* (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

*Chlorophyll* refers to the green pigments of plants. Chlorophyll *a* and *b* are the two most common green pigments in plants.

*Color unit* is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

*Contents* is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

*Control* designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

*Control structure* as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

*Cubic feet per second per square mile* [$(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

*Cubic foot per second* ($ft^3/s$) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic-foot-per-second day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter ($m^2$), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

| Classification | Size (mm) | Method of analysis |
|---|---|---|
| Clay.......... | 0.00024 - 0.004 | Sedimentation |
| Silt.......... | .004 - .062 | Sedimentation |
| Sand.......... | .062 - 2.0 | Sedimentation or sieve |
| Gravel........ | 2.0 - 64.0 | Sieve |

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth ($1 \times 10^{-12}$) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields $3.7 \times 10^{10}$ disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/($m^2$.time)] for periphyton and macrophytes and [mg C/($m^3$.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg $O_2/(m^2.time)$] for periphyton and macrophytes and [mg $O_2/(m^3.time)$] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN., in.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge ($ft^3/s$) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

*7-day 10-year low flow* (7 $Q_{10}$) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

*Sodium-adsorption-ratio* (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

*Solute* is any substance that is dissolved in water.

*Specific conductance* is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

*Stage-discharge relation* is the relation between gage height (stage) and volume of water, per unit of time, flowing in a channel.

*Streamflow* is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

*Substrate* is the physical surface upon which an organism lives.

*Natural substrate* refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

*Artificial substrate* is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

*Surface area* of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

*Surficial bed material* is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

*Suspended* (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

*Suspended, recoverable* is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) *dissolved* and (2) *total recoverable* concentrations of the constituent.

*Suspended, total* is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) **dissolved** and (2) **total** concentrations of the constituent.

**Taxonomy** is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

| | |
|---|---|
| Kingdom | Animal |
| Phylum | Arthropoda |
| Class | Insecta |
| Order | Ephemeroptera |
| Family | Ephemeridae |
| Genus | *Hexagenia* |
| Species | *Hexagenia limbata* |

**Thermograph** is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

**Time-weighted average** is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

**Tons per acre-foot** indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

**Tons per day** (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

**Total** is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

**Total discharge** is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

**Total, recoverable** is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

**Tritium Network** is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

**Water year** in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1985, is called the "1985 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett St., Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*. by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*. by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 Pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. *Measurement of time of travel and dispersion in streams by dye tracing,* by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

3-A10. *Discharge ratings at gaging stations,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A13. *Computation of continuous records of streamflow,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge,* by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

3-B1. *Aquifer-test design, observation, and data analysis,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers,* by J. E. Reed: USGS-TWRI Book 3, Chapter B3. 1980. 106 pages.

3-C1. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells,* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments,* by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy,* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sedments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffrannek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages

8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

## SELECTED U.S. GEOLOGICAL SURVEY REPORTS ON WATER RESOURCES IN VIRGINIA

Listed below is a selection of reports on water resources in Virginia which are available through the Virginia Office of the Mid-Atlantic District at the U.S. Geological Survey, WRD, 3600 West Broad Street, Room 606, Richmond, Virginia 23230.

*An index of geophysical logging in Virginia by the U.S. Geological Survey*, by J. D. Mulheren, J. D. Larson, and H. T. Hopkins: U.S. Geological Survey Open-File Report 82-432. 1982. 34 pages.

*Availability and quality of ground water in the Piedmont Province of Virginia*, by J. D. Powell and J. M. Abe: U.S. Geological Survey Water-Resources Investigations Report 85-4235. 1985. 33 pages.

*Effects of fracturing on well yields in the coalfield areas of Wise and Dickenson Counties, southwestern Virginia*, by W. G. Wright: U.S. Geological Survey Water-Resources Investigations Report 85-4061. 1985. 21 pages.

*Ground-water availability along the Blue Ridge Parkway, Virginia*, by H. T. Hopkins: U.S. Geological Survey Water-Resources Investigations Report 84-4168. 1984. 154 pages.

*Guide to obtaining U.S. Geological Survey information*, by K. Dodd, H. K. Fuller, and P. F. Clarke: U.S. Geological Survey Circular 900. 1985. 35 pages.

*Hydrology and effects of mining in the upper Russell Fork basin, Buchanan and Dickenson Counties, Virginia*, by J. D. Larson and J. D. Powell: U.S. Geological Survey Water-Resources Investigations Report 85-4238. 1986. 63 pages.

*Hydrology of Area 16, Eastern Coal Province, Virginia and Tennessee*, by P. W. Hufschmidt and others: U.S. Geological Survey Water-Resources Investigations Report 81-204. 1981. 67 pages.

*Low flow of streams in Fairfax County, Virginia*, by E. H. Mohler, Jr., and G. F. Hagan: U.S. Geological Survey Open-File Report 81-63. 1981. 30 pages.

*Quality of ground water in southern Buchanan County, Virginia*, by S. M. Rogers and J. D. Powell: U.S. Geological Survey Water-Resources Investigations 82-4022. 1983. 36 pages.

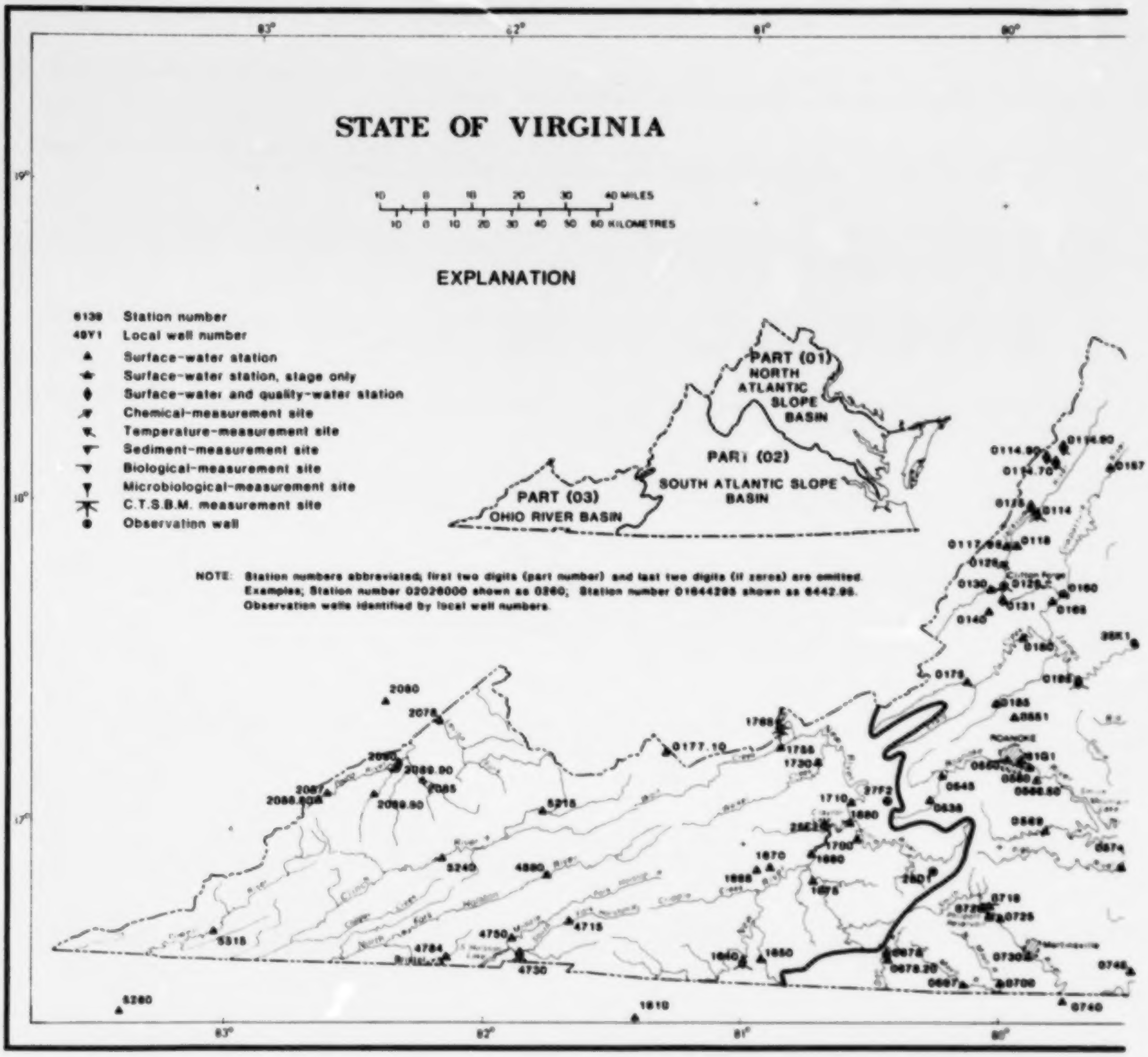
*Relation between ground-water quality and mineralogy in the coal-producing Norton Formation of Buchanan County, Virginia*, by J. D. Powell and J. D. Larson: U.S. Geological Survey Water-Supply Paper 2274. 1985. 30 pages.

*Selected hydrologic data for the Powell River basin in Wise County, Virginia*, by J. D. Larson: U.S. Geological Survey Open-File Report 85-186. 1985. 22 pages.

*Selected publications on the water resources of Virginia*, by N. R. Carrington: U.S. Geological Survey Open-File Report 86-418. 1986. 34 pages.

*Sensitivity of stream basins in Shenandoah National Park to acid deposition*, by D. D. Lynch and N. B. Dise: U.S. Geological Survey Water-Resources Investigations Report 85-4115. 1985. 61 pages.

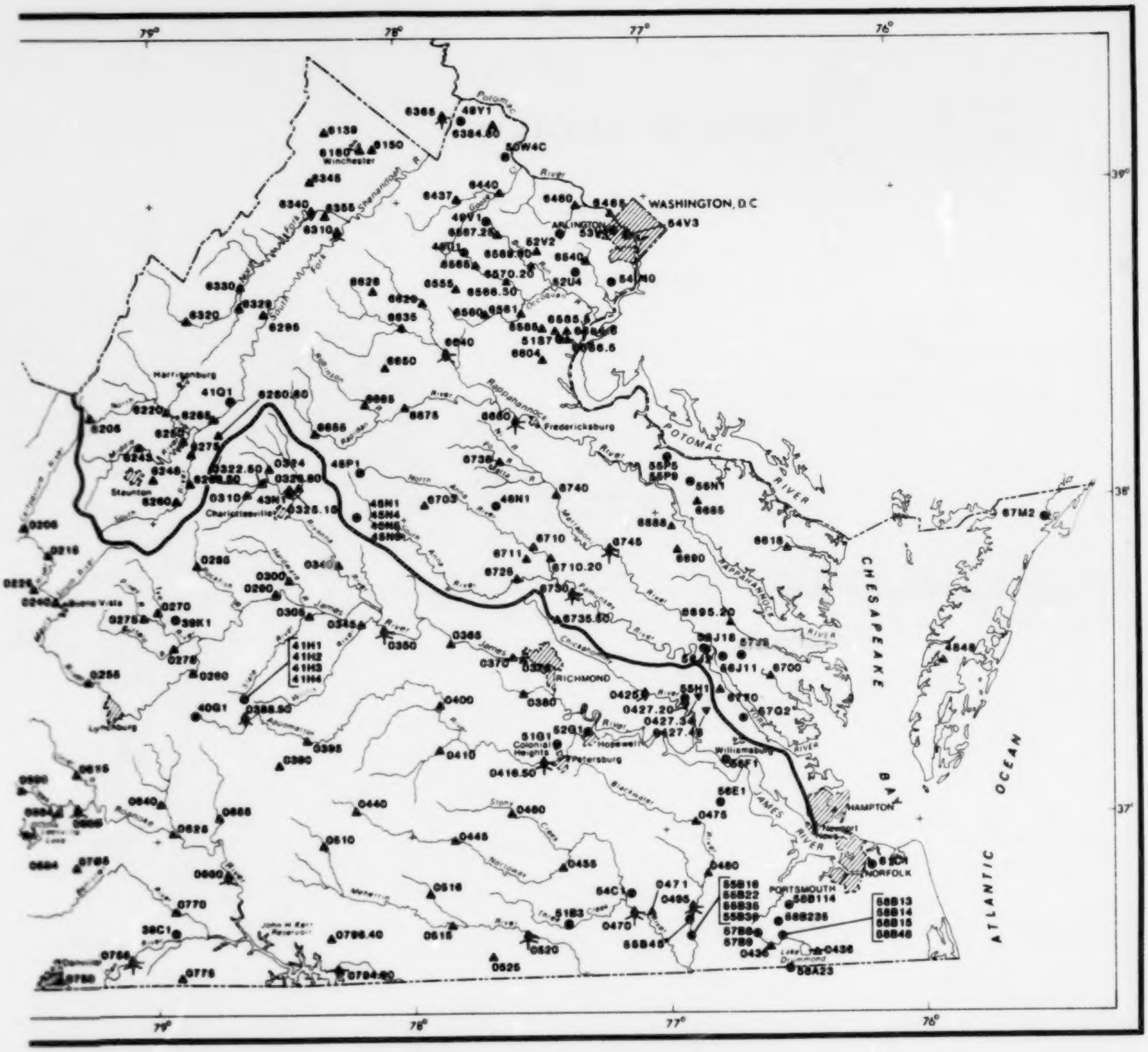
*Water-level hydrographs for observation wells in Virginia*, by S. Farrington, N. R. Carrington, and W. V. Daniels: U.S. Geological Survey Open-File Report 84-134. 1984. 167 pages.



NOTE: Station numbers abbreviated; first two digits (part number) and last two digits (if zeros) are omitted. Examples; Station number 02026000 shown as 0260; Station number 01644295 shown as 6442.95. Observation wells identified by local well numbers.

STATE OF VIRGINIA
10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 60 KILOMETRES
EXPLANATION
6139 Station number
49V1 Local well number
▲ Surface-water station
Surface-water station, stage only
Surface-water and quality-water station
Chemical-measurement site
Temperature-measurement site
Sediment-measurement site
Biological-measurement site
Microbiological-measurement site
C.T.S.B.M. measurement site
● Observation well
PART (01) NORTH ATLANTIC SLOPE BASIN
PART (02) SOUTH ATLANTIC SLOPE BASIN
PART (03) OHIO RIVER BASIN
83°
82°
81°
80°
39°
38°
37°
2080
2078
2090
2089.90
2085
2087
2086.60
2088.90
5215
5240
4880
5515
4750
4784
4730
4715
5280
1810
0177.10
1765
1755
1720
1710
27F2
1690
1700
1680
1670
1666
1675
1640
1650
26D1
0114.90
0114.70
0157
0115
0114
0117
0118
0125
0130
0129
0131
0140
0160
0165
0180
28K1
0175
0185
0551
ROANOKE
0560
0645
0635
0566.50
0569
0574
0710
0725
0730
0674
0675.20
0697
0700
0745
0740
Martinsville

Figure 6.-- Map of Virginia showing location of data-collection stations.


79°
78°
77°
76°
39°
38°
37°
WASHINGTON, D.C
ARLINGTON
Winchester
Harrisonburg
Staunton
Charlottesville
Buena Vista
Lynchburg
Fredericksburg
RICHMOND
Colonial Heights
Petersburg
Hopewell
Williamsburg
HAMPTON
Newport News
NORFOLK
PORTSMOUTH
Danville
John H. Kerr Reservoir
Lake Drummond
Potomac River
POTOMAC RIVER
Shenandoah R
North Fork
South Fork
Goose C
Occoquan R
Rapidan
Robinson
Rappahannock River
RAPPAHANNOCK RIVER
North Anna River
South Anna River
Mattaponi
Pamunkey
Po R
Matta R
Rivanna
James River
JAMES RIVER
YORK RIVER
Chickahominy
Appomattox
Blackwater
Nottoway
Stony Creek
Meherrin
Roanoke
Dan River
CHESAPEAKE BAY
ATLANTIC OCEAN
6365
49Y1
6384.60
50W4C
6139
6150
6160
6345
6340
6355
6310
6330
6320
6328
6295
6437
6440
6460
6465
54V3
49V1
6567.25
48U1
6568.60
52V2
6565
6570.20
6640
52U4
54U10
6626
6555
6566.50
6620
6635
6560
6561
6585.5
6588
5187
6596.5
6604
6640
6650
41Q1
6280.60
6220
6265
6205
6250
6275
6243
6246
6260
6665
6675
6680
6686
0322.50
0324
0326.60
0310
43N1
0325.10
48P1
45N1
45N4
45N6
45N9
6703
46N1
6736
6740
55P5
55P8
56N1
6665
6688
6710
6711
6745
6690
6616
67M2
6710.20
6725
6730
6735.60
6695.20
56J18
6735
56J11
6700
55H1
6770
0425
0427.20
0427.34
0427.45
57G2
56F1
56E1
0475
0206
0215
0225
0240
0285
0300
0290
0340
0270
0275
39K1
0305
0345
0350
0365
0370
0375
0380
41H1
41H2
41H3
41H4
0278
0280
0255
40G1
0388.50
0400
0395
0390
0410
51G1
52G1
0416.50
0615
0580
0640
0655
0626
0440
0460
0510
0445
0455
0584
0785
0660
0516
0480
54C1
0471
0495
0470
5183
55B18
55B22
55B35
55B39
56B114
58B235
58B13
58B14
58B15
58B46
57B6
57B9
55B45
0436
0438
58A23
62C1
4848
0770
38C1
0796.40
0515
0520
0525
0765
0760
0775
0794.60

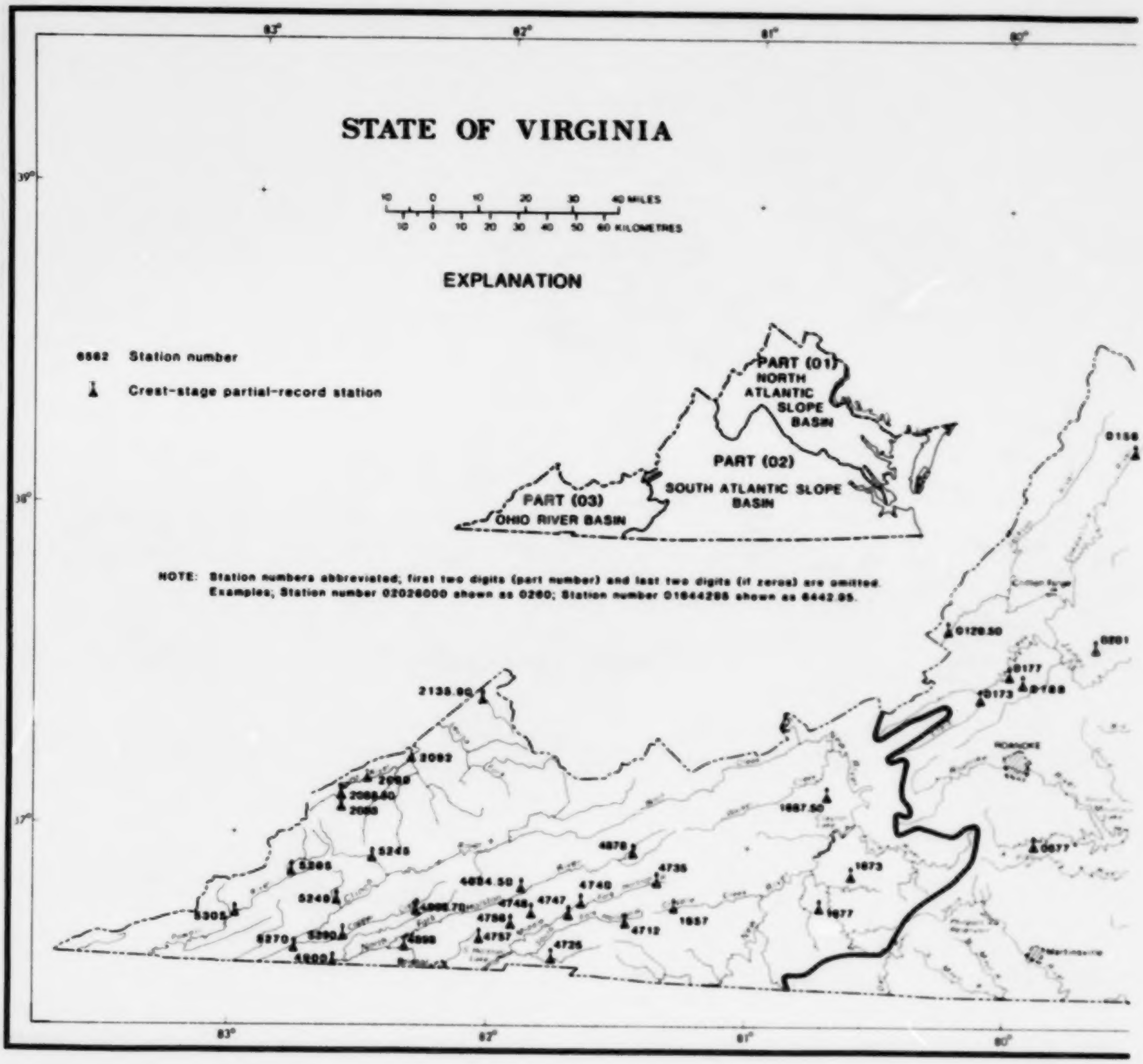
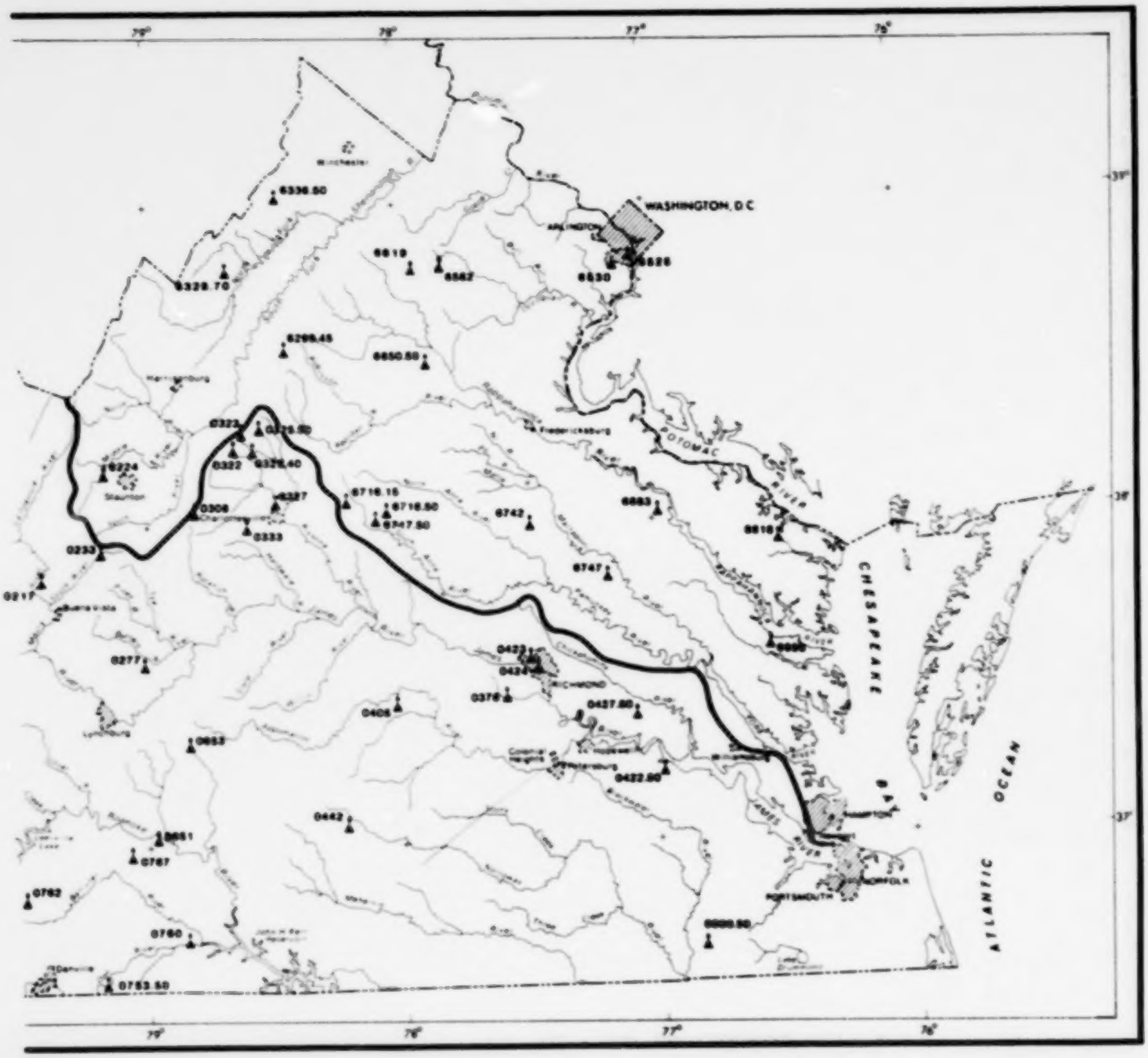

STATE OF VIRGINIA
10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 60 KILOMETRES
EXPLANATION
6662 Station number
Crest-stage partial-record station
PART (01) NORTH ATLANTIC SLOPE BASIN
PART (02) SOUTH ATLANTIC SLOPE BASIN
PART (03) OHIO RIVER BASIN
NOTE: Station numbers abbreviated; first two digits (part number) and last two digits (if zeros) are omitted. Examples; Station number 02026000 shown as 0260; Station number 01644285 shown as 6442.85.
83°
82°
81°
80°
39°
38°
37°
2135.90
2092
2089
2088.40
2080
5245
5265
5240
5302
5270
5290
4800
4880
4884.50
4886.70
4748
4747
4740
4758
4757
4725
4712
4878
4735
1957
1667.50
1673
1677
0129.50
0177
0173
0788
0801
0156
0677
ROANOKE
Martinsville

Figure 7.-- Map of Virginia showing location of partial-record stations.


79°
78°
77°
76°
39°
38°
37°
Winchester
6336.50
6329.70
6619
6582
ARLINGTON
WASHINGTON, D.C.
6530
6298.45
6650.50
Harrisonburg
Fredericksburg
POTOMAC
RIVER
0323
0326.50
0322
0326.40
6224
Staunton
0306
Charlottesville
0327
0333
0716.15
6716.50
6717.50
6742
6683
6618
0233
0217
Buena Vista
6747
0277
0423
0424
RICHMOND
0376
0405
0427.80
Lynchburg
0653
Colonial Heights
Petersburg
Hopewell
Williamsburg
0422.80
CHESAPEAKE
BAY
HAMPTON
JAMES
RIVER
0442
0651
0767
OCEAN
ATLANTIC
NORFOLK
PORTSMOUTH
0762
0760
John H. Kerr Reservoir
Lake Drummond
Danville
0753.50

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## SURFACE-WATER RECORDS

**REMARK CODES.**--The following remark codes may appear with the water-quality data in this section:

| PRINTED OUTPUT | REMARK |
|---|---|
| E | Estimated value |
| > | Actual value is known to be greater than the value shown. |
| < | Actual value is known to be less than the the value shown |
| K | Results based on colony count outside the acceptance range (non-ideal colony count) |
| L | Biological organism count less than 0.5 percent (organism may be observed rather than counted) |
| D | Biological organism count equal to or greater than 15 percent (dominant) |
| & | Biological organism estimated as dominant |

## NORTH ATLANTIC SLOPE BASINS

## NASSAWADOX CREEK BASIN

### 01484800 GUY CREEK NEAR NASSAWADOX, VA

LOCATION.--Lat 37°30'08", long 75°52'22", Northampton County, Hydrologic Unit 02080109, on left bank 25 ft upstream from bridge on State Highway 606, 1.9 mi northwest of Nassawadox, and 2.1 mi upstream from mouth.

DRAINAGE AREA.--1.72 mi$^2$.

PERIOD OF RECORD.--November 1963 to current year.

GAGE.--Water-stage recorder and wooden control. Datum of gage is 11.67 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 22-29. Records good except those for period of no gage-height record, Jan. 22-25, and period with ice effect, Jan. 26-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--21 years (water years 1965-85), 1.39 ft$^3$/s, 10.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78 ft$^3$/s, July 31, 1979, gage height, 5.28 ft; no flow at times in 1964, 1966, 1981, and 1983-85.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 20 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Sept. 27 | 0645 | *13 | *2.82 | No peak equal to or greater than base discharge. | | | |

No flow many days in July, August, and September, result of diversion for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .58 | .48 | 1.2 | .44 | 1.2 | 1.1 | 1.2 | .26 | .17 | .31 | .57 | .00 |
| 2 | .52 | .50 | 1.3 | .43 | 1.6 | 1.4 | 1.1 | .39 | .05 | .24 | .32 | .00 |
| 3 | .46 | .48 | 1.2 | 1.0 | 1.2 | 1.1 | 1.1 | .66 | .02 | .33 | .28 | .00 |
| 4 | .45 | .49 | .51 | 1.1 | .96 | 1.1 | .98 | .63 | .09 | .29 | .26 | .00 |
| 5 | .45 | .54 | .51 | .74 | .90 | 1.1 | .95 | .48 | .31 | .28 | .27 | .00 |
| 6 | .44 | .52 | .94 | .60 | .96 | .90 | .92 | .28 | .48 | .31 | .27 | .00 |
| 7 | .43 | .48 | .51 | .55 | .90 | .85 | .88 | .16 | .33 | .35 | .27 | .00 |
| 8 | .41 | .48 | .46 | .53 | .84 | .90 | .95 | .15 | .44 | .28 | .26 | .00 |
| 9 | .38 | .48 | .43 | .53 | .82 | .87 | .90 | .13 | .35 | .17 | .30 | .00 |
| 10 | .27 | .50 | .43 | .51 | .82 | .82 | .73 | .16 | .29 | .04 | .33 | .00 |
| 11 | .22 | .50 | .43 | .53 | .81 | .82 | .57 | .20 | .29 | .00 | .32 | .00 |
| 12 | .23 | .53 | .41 | .48 | 2.3 | .91 | .57 | .67 | .43 | .00 | .27 | .00 |
| 13 | .08 | .52 | .40 | .48 | 1.8 | .82 | .61 | .56 | .68 | .09 | .00 | .00 |
| 14 | .20 | .48 | .39 | .51 | 1.4 | .79 | .73 | .44 | .32 | .27 | .00 | .00 |
| 15 | .15 | .48 | .39 | .50 | 1.2 | .74 | .68 | .39 | .28 | .26 | .00 | .00 |
| 16 | .06 | .51 | .42 | .48 | 1.1 | .74 | .64 | .37 | .31 | .29 | .00 | .00 |
| 17 | .25 | .50 | .43 | .54 | 1.1 | .75 | .53 | .39 | .29 | .26 | .00 | .00 |
| 18 | .11 | .54 | .41 | .61 | .98 | .74 | .47 | .39 | .27 | .26 | .01 | .00 |
| 19 | .08 | .90 | .40 | .61 | .98 | .74 | .38 | .34 | .25 | .12 | .19 | .00 |
| 20 | .17 | .84 | .39 | .58 | .91 | .72 | .38 | .25 | .25 | .19 | .34 | .00 |
| 21 | .25 | .80 | .39 | .51 | .90 | .66 | .47 | .16 | .24 | .27 | .34 | .00 |
| 22 | .05 | .83 | .39 | .46 | .90 | .89 | .47 | .25 | .22 | .26 | .33 | .00 |
| 23 | .42 | .90 | .39 | .45 | .90 | 2.6 | .38 | .33 | .21 | .27 | .31 | .00 |
| 24 | .55 | .88 | .39 | .43 | .90 | 2.7 | .48 | .93 | .26 | .25 | .29 | .00 |
| 25 | .53 | .87 | .39 | .44 | .83 | 2.3 | .41 | 1.1 | .23 | .27 | .29 | .00 |
| 26 | .53 | .77 | .39 | .46 | 1.3 | 1.7 | .26 | .58 | .20 | .27 | .25 | .44 |
| 27 | .52 | .82 | .42 | .47 | 1.2 | 1.5 | .30 | .42 | .12 | .50 | .00 | 4.1 |
| 28 | .51 | .97 | .39 | .48 | 1.0 | 1.4 | .28 | .36 | .30 | .47 | .00 | .47 |
| 29 | .42 | 1.4 | .39 | .49 | --- | 1.4 | .32 | .36 | .32 | .40 | .00 | .29 |
| 30 | .43 | 1.2 | .42 | .48 | --- | 1.4 | .34 | .34 | .29 | .31 | .00 | .28 |
| 31 | .48 | --- | .43 | .77 | --- | 1.2 | --- | .33 | --- | .32 | .00 | --- |
| TOTAL | 10.63 | 20.19 | 15.95 | 17.19 | 30.71 | 35.66 | 18.98 | 12.46 | 8.29 | 7.93 | 6.07 | 5.58 |
| MEAN | .34 | .67 | .51 | .55 | 1.10 | 1.15 | .63 | .40 | .28 | .26 | .20 | .19 |
| MAX | .58 | 1.4 | 1.3 | 1.1 | 2.3 | 2.7 | 1.2 | 1.1 | .68 | .50 | .57 | 4.1 |
| MIN | .05 | .48 | .39 | .43 | .81 | .66 | .26 | .13 | .02 | .00 | .00 | .00 |
| CFSM | .20 | .39 | .30 | .32 | .64 | .67 | .37 | .23 | .16 | .15 | .12 | .11 |
| IN. | .23 | .44 | .34 | .37 | .66 | .77 | .41 | .27 | .18 | .17 | .13 | .12 |

CAL YR 1984 TOTAL 717.93 MEAN 1.96 MAX 32 MIN .01 CFSM 1.14 IN. 15.53
WTR YR 1985 TOTAL 189.64 MEAN .52 MAX 4.1 MIN .00 CFSM .30 IN. 4.10

## 01613900 HOGUE CREEK NEAR HAYFIELD, VA

LOCATION.--Lat 39°12'52", long 78°17'18", Frederick County, Hydrologic Unit 02070004, on right bank 15 ft upstream from bridge on State Highway 614, 0.8 mi upstream from Gap Run, and 1.3 mi southeast of Hayfield.

DRAINAGE AREA.--15.0 mi².

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 668.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 12-16, 19-29 and Feb. 3, 4, 12. Records good except those for period of no gage-height record, Feb. 12, and periods with ice effect, Jan. 12-16, 19-29 and Feb. 3, 4, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 14.9 ft³/s, 13.49 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft³/s, June 22, 1972, gage height, 8.85 ft, from rating curve extended above 870 ft³/s; no flow for part of Sept. 14, 1968, cause unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 400 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2200 | *1,010 | *5.76 | Feb. 12 | Unknown | Unknown | Unknown |

Minimum discharge, 0.65 ft³/s, Aug. 16, gage height, 0.60 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.6 | 2.6 | 20 | 5.8 | 8.4 | 16 | 45 | 5.1 | 16 | 1.9 | 1.5 | 1.0 |
| 2 | 2.9 | 2.4 | 14 | 8.6 | 15 | 15 | 30 | 5.6 | 8.9 | 2.1 | 1.4 | 1.1 |
| 3 | 2.1 | 3.5 | 12 | 8.4 | 12 | 13 | 24 | 11 | 6.6 | 2.2 | 1.1 | 1.1 |
| 4 | 1.8 | 3.2 | 9.8 | 9.7 | 10 | 12 | 20 | 8.0 | 5.8 | 1.8 | 1.1 | 1.1 |
| 5 | 1.7 | 4.1 | 8.7 | 25 | 8.4 | 12 | 18 | 6.8 | 11 | 1.9 | 1.0 | .97 |
| 6 | 1.7 | 3.2 | 12 | 19 | 8.0 | 11 | 15 | 5.8 | 12 | 2.4 | 1.1 | 1.1 |
| 7 | 1.7 | 2.8 | 9.8 | 17 | 7.4 | 9.8 | 13 | 5.6 | 9.5 | 1.9 | 1.0 | 1.0 |
| 8 | 1.8 | 2.6 | 8.7 | 14 | 7.4 | 9.8 | 12 | 5.3 | 14 | 1.6 | 1.6 | 1.2 |
| 9 | 1.8 | 2.4 | 8.0 | 10 | 7.4 | 9.4 | 12 | 4.4 | 9.6 | 2.1 | 1.4 | 1.4 |
| 10 | 1.8 | 2.3 | 8.0 | 9.0 | 7.1 | 9.0 | 9.8 | 4.4 | 7.2 | 2.2 | 1.1 | 1.5 |
| 11 | 1.8 | 2.6 | 9.0 | 9.0 | 7.1 | 9.4 | 9.8 | 4.4 | 6.5 | 1.9 | .94 | 1.3 |
| 12 | 1.8 | 4.4 | 8.4 | 8.4 | 250 | 9.0 | 8.7 | 12 | 6.0 | 1.9 | .91 | 1.3 |
| 13 | 1.8 | 2.9 | 8.4 | 7.4 | 90 | 8.7 | 8.7 | 14 | 4.5 | 1.8 | .89 | 1.1 |
| 14 | 2.1 | 2.1 | 7.4 | 7.1 | 42 | 8.4 | 8.7 | 7.7 | 3.8 | 1.6 | .83 | 1.2 |
| 15 | 2.0 | 2.3 | 7.1 | 6.4 | 26 | 8.4 | 8.7 | 6.4 | 3.7 | 2.4 | .83 | 1.2 |
| 16 | 2.0 | 2.1 | 6.8 | 6.1 | 21 | 8.0 | 9.0 | 5.8 | 3.8 | 1.7 | 1.0 | 1.2 |
| 17 | 2.0 | 2.0 | 6.4 | 5.3 | 18 | 7.7 | 9.0 | 11 | 3.7 | 1.4 | 1.6 | 1.2 |
| 18 | 2.4 | 2.4 | 6.1 | 5.3 | 16 | 7.4 | 8.0 | 16 | 3.2 | 1.5 | 1.7 | 1.2 |
| 19 | 2.8 | 4.1 | 6.4 | 5.2 | 17 | 6.8 | 7.7 | 9.4 | 2.9 | 1.4 | 1.6 | 1.2 |
| 20 | 3.1 | 3.6 | 6.4 | 5.2 | 17 | 6.8 | 7.4 | 7.1 | 2.8 | 1.2 | 1.2 | 1.2 |
| 21 | 2.0 | 3.2 | 8.0 | 4.2 | 17 | 6.4 | 6.8 | 5.6 | 2.7 | 1.2 | 1.4 | 1.2 |
| 22 | 3.3 | 2.9 | 9.4 | 3.3 | 20 | 6.8 | 6.4 | 5.1 | 2.6 | 1.2 | 1.2 | 1.3 |
| 23 | 5.8 | 2.8 | 8.7 | 3.3 | 25 | 17 | 6.4 | 36 | 2.4 | 1.1 | 1.1 | 1.5 |
| 24 | 5.3 | 2.6 | 8.0 | 3.3 | 25 | 28 | 6.4 | 28 | 2.3 | 1.1 | 1.4 | 1.6 |
| 25 | 3.9 | 2.4 | 8.0 | 3.7 | 22 | 31 | 6.4 | 14 | 2.2 | 1.9 | 2.3 | 1.6 |
| 26 | 3.9 | 2.4 | 6.8 | 3.8 | 23 | 22 | 6.1 | 8.7 | 2.0 | 3.1 | 1.9 | 1.7 |
| 27 | 2.4 | 2.6 | 6.8 | 3.8 | 20 | 18 | 6.1 | 6.3 | 1.9 | 3.3 | 1.6 | 4.0 |
| 28 | 3.1 | 209 | 6.4 | 3.9 | 17 | 16 | 5.8 | 5.7 | 1.8 | 1.8 | 1.3 | 2.1 |
| 29 | 5.1 | 178 | 6.4 | 4.0 | --- | 15 | 5.6 | 5.6 | 1.6 | 1.4 | 1.1 | 1.7 |
| 30 | 3.4 | 42 | 6.1 | 4.1 | --- | 17 | 5.1 | 4.9 | 1.6 | 1.4 | 1.1 | 1.7 |
| 31 | 2.9 | --- | 5.8 | 4.6 | --- | 26 | --- | 25 | --- | 1.3 | 1.1 | --- |
| TOTAL | 84.8 | 505.5 | 263.8 | 233.9 | 764.2 | 400.8 | 345.6 | 300.7 | 162.6 | 55.7 | 39.30 | 41.97 |
| MEAN | 2.74 | 16.8 | 8.51 | 7.55 | 27.3 | 12.9 | 11.5 | 9.70 | 5.42 | 1.80 | 1.27 | 1.40 |
| MAX | 5.8 | 209 | 20 | 25 | 250 | 31 | 45 | 36 | 16 | 3.3 | 2.3 | 4.0 |
| MIN | 1.7 | 2.0 | 5.8 | 3.3 | 7.1 | 6.4 | 5.1 | 4.4 | 1.6 | 1.1 | .83 | .97 |
| CFSM | .18 | 1.12 | .57 | .50 | 1.82 | .86 | .77 | .65 | .36 | .12 | .08 | .09 |
| IN. | .21 | 1.25 | .65 | .58 | 1.90 | .99 | .86 | .75 | .40 | .14 | .10 | .10 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 7761.9 | MEAN | 21.2 | MAX | 683 | MIN | 1.2 | CFSM | 1.41 | IN. 19.25 |
| WTR YR 1985 | TOTAL | 3198.87 | MEAN | 8.76 | MAX | 250 | MIN | .83 | CFSM | .58 | IN. 7.93 |

## 01615000 OPEQUON CREEK NEAR BERRYVILLE, VA

**LOCATION.**--Lat 39°10'40", long 78°04'20", Frederick County, Hydrologic Unit 02070004, on left bank between the bridges on State Highway 7, 0.2 mi upstream from Abrams Creek, and 5.0 mi west of Berryville.

**DRAINAGE AREA.**--57.4 mi$^2$.

**PERIOD OF RECORD.**--October 1943 to current year.

**REVISED RECORDS.**--WSP 2103: Drainage area. WDR VA-72-1: 1971(P).

**GAGE.**--Water-stage recorder. Datum of gage is 503.24 ft above National Geodetic Vertical Datum of 1929. Prior to July 26, 1949, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 12-14, 16-18, 21-29, Feb. 7, Apr. 22 to May 2, May 6-12, 15, 16, 21, 22, 28-30, and June 15-25. Records good except those for periods of no gage-height record, Apr. 22 to May 2, May 6-12, 15, 16, 21, 22, 28-30, and June 15-25, and periods with ice effect, Jan. 12-14, 16-18, 21-29 and Feb. 7, which are fair. Diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--42 years, 42.5 ft$^3$/s, 10.05 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 10,600 ft$^3$/s, Nov. 13, 1970, gage height, 12.82 ft, from rating curve extended above 4,800 ft$^3$/s; minimum daily, 0.20 ft$^3$/s, Sept. 12, 13, 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in October 1942 reached a stage of 18.4 ft, discharge not determined, from information by local residents.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 850 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0100 | 1,990 | 7.60 | Feb. 12 | 1430 | *3,610 | *9.51 |

Minimum daily discharge, 2.7 ft$^3$/s, Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19 | 10 | 68 | 13 | 50 | 29 | 53 | 8.2 | 59 | 4.4 | 8.0 | 4.4 |
| 2 | 16 | 10 | 47 | 24 | 160 | 27 | 42 | 8.2 | 27 | 17 | 5.2 | 4.9 |
| 3 | 11 | 9.9 | 38 | 43 | 86 | 23 | 35 | 16 | 17 | 15 | 4.6 | 4.9 |
| 4 | 9.9 | 9.7 | 29 | 87 | 64 | 21 | 30 | 13 | 14 | 8.4 | 4.1 | 3.8 |
| 5 | 9.4 | 32 | 24 | 90 | 49 | 21 | 26 | 11 | 24 | 6.4 | 3.8 | 3.8 |
| 6 | 9.1 | 27 | 47 | 83 | 41 | 19 | 22 | 9.5 | 48 | 5.8 | 3.8 | 3.3 |
| 7 | 8.9 | 16 | 60 | 68 | 35 | 17 | 19 | 8.6 | 24 | 5.7 | 3.8 | 3.8 |
| 8 | 8.9 | 13 | 39 | 52 | 30 | 17 | 18 | 8.0 | 32 | 5.2 | 7.5 | 3.3 |
| 9 | 8.9 | 12 | 32 | 36 | 27 | 17 | 17 | 8.0 | 22 | 5.6 | 8.0 | 4.4 |
| 10 | 8.9 | 12 | 28 | 30 | 32 | 15 | 15 | 8.0 | 16 | 5.9 | 4.8 | 3.8 |
| 11 | 8.7 | 12 | 27 | 27 | 33 | 15 | 15 | 8.4 | 13 | 6.1 | 4.4 | 3.8 |
| 12 | 8.2 | 12 | 25 | 24 | 1780 | 18 | 14 | 11 | 13 | 5.5 | 4.4 | 3.3 |
| 13 | 7.8 | 9.7 | 22 | 21 | 278 | 14 | 15 | 19 | 11 | 5.4 | 4.4 | 3.3 |
| 14 | 7.8 | 9.6 | 20 | 19 | 98 | 14 | 14 | 11 | 11 | 4.8 | 4.5 | 3.3 |
| 15 | 7.8 | 9.3 | 18 | 17 | 70 | 14 | 13 | 10 | 10 | 7.4 | 4.4 | 3.3 |
| 16 | 7.8 | 9.3 | 17 | 16 | 53 | 13 | 14 | 10 | 9.5 | 23 | 4.4 | 3.8 |
| 17 | 7.8 | 9.0 | 15 | 16 | 44 | 13 | 13 | 25 | 8.8 | 6.6 | 5.3 | 3.8 |
| 18 | 7.8 | 8.2 | 15 | 16 | 39 | 12 | 12 | 27 | 8.4 | 4.8 | 7.8 | 3.3 |
| 19 | 7.8 | 11 | 15 | 16 | 37 | 12 | 12 | 14 | 7.8 | 4.6 | 8.0 | 3.3 |
| 20 | 8.1 | 13 | 17 | 16 | 37 | 12 | 11 | 11 | 7.5 | 4.3 | 5.5 | 3.3 |
| 21 | 8.2 | 12 | 16 | 13 | 34 | 12 | 11 | 10 | 7.0 | 4.4 | 5.1 | 2.8 |
| 22 | 8.6 | 9.8 | 27 | 10 | 36 | 12 | 10 | 10 | 6.6 | 4.3 | 5.0 | 2.7 |
| 23 | 24 | 9.3 | 22 | 10 | 44 | 44 | 10 | 57 | 6.5 | 3.7 | 4.4 | 2.8 |
| 24 | 22 | 9.5 | 19 | 10 | 51 | 113 | 10 | 51 | 6.5 | 3.2 | 4.7 | 3.3 |
| 25 | 14 | 9.2 | 19 | 11 | 48 | 116 | 9.8 | 23 | 6.0 | 4.2 | 6.6 | 3.3 |
| 26 | 12 | 8.9 | 15 | 12 | 43 | 65 | 9.6 | 15 | 4.6 | 7.4 | 8.1 | 3.3 |
| 27 | 10 | 8.9 | 14 | 13 | 40 | 47 | 9.2 | 12 | 4.4 | 9.0 | 6.6 | 8.3 |
| 28 | 11 | 255 | 14 | 13 | 32 | 38 | 9.0 | 10 | 4.6 | 7.0 | 5.4 | 8.5 |
| 29 | 22 | 838 | 14 | 13 | --- | 33 | 8.6 | 9.5 | 4.5 | 5.4 | 3.8 | 4.4 |
| 30 | 15 | 109 | 14 | 13 | --- | 36 | 8.2 | 9.0 | 4.3 | 4.8 | 4.4 | 3.3 |
| 31 | 14 | --- | 13 | 15 | --- | 36 | --- | 58 | --- | 5.3 | 4.4 | --- |
| TOTAL | 350.4 | 1524.3 | 790 | 847 | 3371 | 895 | 505.4 | 509.4 | 438.0 | 210.6 | 165.2 | 117.6 |
| MEAN | 11.3 | 50.8 | 25.5 | 27.3 | 120 | 28.9 | 16.8 | 16.4 | 14.6 | 6.79 | 5.33 | 3.92 |
| MAX | 24 | 838 | 68 | 90 | 1780 | 116 | 53 | 58 | 59 | 23 | 8.1 | 8.5 |
| MIN | 7.8 | 8.2 | 13 | 10 | 27 | 12 | 8.2 | 8.0 | 4.3 | 3.2 | 3.8 | 2.7 |
| CFSM | .20 | .89 | .44 | .48 | 2.09 | .50 | .29 | .29 | .25 | .12 | .09 | .07 |
| IN. | .23 | .99 | .51 | .55 | 2.18 | .58 | .33 | .33 | .28 | .14 | .11 | .08 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 27586.0 | MEAN | 75.4 | MAX | 2970 | MIN | 7.8 | CFSM 1.31 | IN. | 17.88 |
| WTR YR 1985 | TOTAL | 9723.9 | MEAN | 26.6 | MAX | 1780 | MIN | 2.7 | CFSM .46 | IN. | 6.30 |

## 01616000 ABRAMS CREEK NEAR WINCHESTER, VA

**LOCATION.**--Lat 39°10'40", long 78°05'10", Frederick County, Hydrologic Unit 02070004, on right bank 1,000 ft upstream from bridge on State Highway 659, 0.9 mi upstream from mouth, and 4.4 mi east of Winchester.

**DRAINAGE AREA.**--16.5 $mi^2$.

**PERIOD OF RECORD.**--July 1949 to September 1960, June 1979 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 526.46 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 20-25, Feb. 9, 10, and May 22 to July 9. Records good except those for periods of no gage-height record, Jan. 20-25, Feb. 9, 10, and May 22 to July 9, which are fair. Slight diurnal fluctuation caused by sewage disposal plant upstream from station at Winchester. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--17 years, 21.2 $ft^3/s$, 17.45 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 982 $ft^3/s$, Feb. 14, 1984; maximum gage height, 6.16 ft, Dec. 4, 1950; minimum discharge, 3.5 $ft^3/s$, Oct. 8, 1954.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 200 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct. 22 | 2200 | 220 | 2.56 | May 12 | 1900 | 331 | 3.02 |
| Nov. 28 | 2130 | 744 | 4.53 | Aug. 26 | 2030 | 220 | 2.56 |
| Feb. 12 | 0800 | *829 | *4.83 | | | | |

Minimum discharge, 12 $ft^3/s$, many days during April, July, August, and September.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 34 | 19 | 29 | 18 | 30 | 23 | 39 | 16 | 40 | 16 | 18 | 15 |
| 2 | 20 | 19 | 26 | 23 | 27 | 22 | 37 | 22 | 32 | 35 | 17 | 15 |
| 3 | 19 | 18 | 26 | 22 | 21 | 21 | 26 | 37 | 28 | 30 | 16 | 15 |
| 4 | 19 | 19 | 23 | 24 | 20 | 22 | 24 | 23 | 25 | 25 | 16 | 16 |
| 5 | 18 | 34 | 24 | 26 | 19 | 22 | 21 | 21 | 28 | 21 | 16 | 15 |
| 6 | 17 | 23 | 30 | 23 | 19 | 22 | 19 | 21 | 45 | 19 | 17 | 15 |
| 7 | 16 | 21 | 26 | 23 | 19 | 22 | 19 | 21 | 35 | 19 | 17 | 15 |
| 8 | 17 | 21 | 23 | 22 | 19 | 22 | 19 | 20 | 37 | 18 | 29 | 14 |
| 9 | 17 | 20 | 22 | 21 | 18 | 21 | 18 | 20 | 31 | 18 | 17 | 16 |
| 10 | 17 | 20 | 22 | 20 | 19 | 21 | 19 | 20 | 28 | 18 | 17 | 16 |
| 11 | 17 | 19 | 22 | 20 | 19 | 22 | 19 | 19 | 26 | 15 | 16 | 15 |
| 12 | 17 | 19 | 21 | 18 | 310 | 29 | 18 | 50 | 25 | 17 | 16 | 15 |
| 13 | 16 | 19 | 21 | 18 | 55 | 37 | 17 | 23 | 24 | 16 | 16 | 14 |
| 14 | 15 | 19 | 20 | 18 | 33 | 41 | 18 | 20 | 23 | 15 | 16 | 14 |
| 15 | 16 | 19 | 18 | 18 | 30 | 41 | 18 | 19 | 22 | 23 | 15 | 14 |
| 16 | 19 | 18 | 18 | 19 | 27 | 39 | 19 | 21 | 21 | 17 | 16 | 14 |
| 17 | 19 | 18 | 18 | 19 | 24 | 36 | 18 | 39 | 20 | 17 | 17 | 15 |
| 18 | 19 | 18 | 19 | 18 | 24 | 39 | 18 | 31 | 20 | 17 | 24 | 15 |
| 19 | 19 | 23 | 20 | 18 | 24 | 37 | 16 | 21 | 19 | 17 | 17 | 15 |
| 20 | 19 | 19 | 19 | 17 | 24 | 37 | 16 | 20 | 19 | 16 | 17 | 14 |
| 21 | 18 | 18 | 21 | 17 | 23 | 37 | 15 | 20 | 18 | 16 | 19 | 14 |
| 22 | 33 | 18 | 22 | 16 | 23 | 39 | 15 | 18 | 18 | 16 | 16 | 14 |
| 23 | 34 | 18 | 20 | 16 | 23 | 48 | 16 | 60 | 17 | 16 | 16 | 15 |
| 24 | 27 | 17 | 20 | 16 | 24 | 41 | 16 | 25 | 17 | 16 | 20 | 16 |
| 25 | 23 | 17 | 19 | 17 | 24 | 34 | 16 | 23 | 17 | 20 | 19 | 17 |
| 26 | 20 | 17 | 20 | 18 | 26 | 27 | 16 | 22 | 16 | 26 | 32 | 17 |
| 27 | 19 | 18 | 20 | 19 | 26 | 24 | 15 | 21 | 16 | 20 | 20 | 39 |
| 28 | 22 | 212 | 19 | 21 | 23 | 22 | 15 | 20 | 16 | 17 | 16 | 15 |
| 29 | 27 | 99 | 19 | 21 | --- | 23 | 16 | 19 | 16 | 17 | 16 | 14 |
| 30 | 21 | 34 | 18 | 21 | --- | 27 | 16 | 18 | 16 | 17 | 15 | 15 |
| 31 | 20 | --- | 19 | 23 | --- | 36 | --- | 60 | --- | 18 | 15 | --- |
| TOTAL | 634 | 873 | 664 | 610 | 973 | 934 | 574 | 790 | 715 | 588 | 554 | 473 |
| MEAN | 20.5 | 29.1 | 21.4 | 19.7 | 34.8 | 30.1 | 19.1 | 25.5 | 23.8 | 19.0 | 17.9 | 15.8 |
| MAX | 34 | 212 | 30 | 26 | 310 | 48 | 39 | 60 | 45 | 35 | 32 | 39 |
| MIN | 15 | 17 | 18 | 16 | 18 | 21 | 15 | 16 | 16 | 15 | 15 | 14 |
| CFSM | 1.24 | 1.76 | 1.30 | 1.19 | 2.11 | 1.82 | 1.16 | 1.55 | 1.44 | 1.15 | 1.08 | .96 |
| IN. | 1.43 | 1.97 | 1.50 | 1.38 | 2.19 | 2.11 | 1.29 | 1.78 | 1.61 | 1.33 | 1.25 | 1.07 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 13832 | MEAN | 37.8 | MAX | 564 | MIN | 15 | CFSM 2.29 | IN. | 31.18 |
| WTR YR 1985 | TOTAL | 8382 | MEAN | 23.0 | MAX | 310 | MIN | 14 | CFSM 1.39 | IN. | 18.90 |

## 01620500 NORTH RIVER NEAR STOKESVILLE, VA

LOCATION.--Lat 38°20'15", long 79°14'25", Augusta County, Hydrologic Unit 02070005, George Washington National Forest, on left bank 575 ft upstream from highway bridge, 2.8 mi upstream from city of Staunton dam, 3.8 mi upstream from Broad Run, 5.0 mi west of Stokesville, and 7.8 mi upstream from Skidmore Fork.

DRAINAGE AREA.--17.2 $mi^2$.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1903: 1960. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,054.57 ft above National Geodetic Vertical Datum of 1929. Prior to June 10, 1958, at site 575 ft downstream at datum 6.0 ft lower.

REMARKS.--Estimated daily discharges: Dec. 13-16, 18, 19, Jan. 19-25, and Feb. 1-6, 8-10, 15, 16. Records good except those for periods of doubtful gage-height record, Dec. 13-16, 18, 19 and Feb. 1-6, and periods with ice effect, Jan. 19-25 and Feb. 8-10, 15, 16, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 25.7 $ft^3/s$, 20.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 $ft^3/s$, June 17, 1949, gage height, 10.9 ft, from floodmarks, site and datum then in use, from rating curve extended above 900 $ft^3/s$ on basis of computation of peak flow over dam; minimum, 0.10 $ft^3/s$, Sept. 15, 16, 19-22, 1962, Sept. 7-13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 8.4 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2145 | *229 | *3.42 | May 3 | 0815 | 202 | 3.32 |

Minimum discharge, 0.86 $ft^3/s$, Sept. 30, gage height, 1.75 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.3 | 3.8 | 47 | 20 | 23 | 53 | 27 | 5.4 | 12 | 1.5 | 8.4 | 13 |
| 2 | 5.2 | 3.6 | 35 | 24 | 70 | 44 | 27 | 10 | 10 | 1.9 | 8.7 | 11 |
| 3 | 3.8 | 3.5 | 30 | 32 | 54 | 36 | 27 | 159 | 9.0 | 1.8 | 6.8 | 9.3 |
| 4 | 2.9 | 3.6 | 26 | 37 | 40 | 32 | 26 | 100 | 8.0 | 1.6 | 5.7 | 8.0 |
| 5 | 2.3 | 5.9 | 22 | 46 | 30 | 28 | 23 | 66 | 8.0 | 1.4 | 5.1 | 6.8 |
| 6 | 1.9 | 7.0 | 20 | 47 | 20 | 25 | 21 | 48 | 7.0 | 1.4 | 4.6 | 5.9 |
| 7 | 1.8 | 7.1 | 18 | 46 | 15 | 22 | 20 | 36 | 6.9 | 1.3 | 4.4 | 5.4 |
| 8 | 1.6 | 7.1 | 16 | 38 | 14 | 20 | 19 | 31 | 6.9 | 1.2 | 8.5 | 5.1 |
| 9 | 1.5 | 6.7 | 15 | 33 | 13 | 20 | 17 | 24 | 6.0 | 1.9 | 6.8 | 4.6 |
| 10 | 1.4 | 6.1 | 14 | 30 | 12 | 19 | 16 | 20 | 5.3 | 4.4 | 5.6 | 4.1 |
| 11 | 1.4 | 6.7 | 15 | 26 | 11 | 18 | 15 | 18 | 4.9 | 4.3 | 4.9 | 3.8 |
| 12 | 1.4 | 6.1 | 17 | 24 | 19 | 19 | 13 | 16 | 7.5 | 13 | 5.7 | 3.7 |
| 13 | 1.3 | 5.6 | 19 | 21 | 22 | 19 | 13 | 14 | 7.6 | 15 | 9.7 | 3.2 |
| 14 | 1.2 | 5.2 | 20 | 19 | 19 | 19 | 12 | 13 | 6.9 | 10 | 7.4 | 2.9 |
| 15 | 1.1 | 4.8 | 19 | 18 | 17 | 19 | 12 | 11 | 6.0 | 7.3 | 6.0 | 2.6 |
| 16 | 1.2 | 4.7 | 18 | 16 | 15 | 18 | 12 | 10 | 6.2 | 5.7 | 5.2 | 2.3 |
| 17 | 1.1 | 4.5 | 17 | 14 | 14 | 18 | 10 | 11 | 5.6 | 4.5 | 5.0 | 2.1 |
| 18 | 1.2 | 4.5 | 16 | 13 | 13 | 17 | 9.5 | 9.8 | 4.6 | 3.7 | 41 | 1.9 |
| 19 | 1.2 | 6.7 | 16 | 12 | 13 | 16 | 8.9 | 8.8 | 3.9 | 3.0 | 79 | 1.8 |
| 20 | 1.1 | 9.0 | 17 | 10 | 14 | 15 | 8.4 | 7.4 | 3.4 | 2.4 | 58 | 1.6 |
| 21 | 1.1 | 9.6 | 20 | 9.5 | 17 | 14 | 8.0 | 6.5 | 3.1 | 2.1 | 77 | 1.5 |
| 22 | 1.1 | 9.7 | 31 | 8.5 | 22 | 14 | 7.6 | 6.2 | 2.8 | 1.8 | 67 | 1.4 |
| 23 | 1.3 | 9.5 | 33 | 8.0 | 36 | 22 | 7.4 | 9.6 | 2.4 | 1.6 | 48 | 1.3 |
| 24 | 2.1 | 9.0 | 33 | 7.5 | 71 | 37 | 7.2 | 20 | 2.1 | 1.4 | 35 | 1.3 |
| 25 | 3.5 | 8.4 | 34 | 6.5 | 102 | 43 | 7.5 | 33 | 1.9 | 2.3 | 32 | 1.3 |
| 26 | 3.1 | 7.8 | 34 | 7.1 | 107 | 39 | 6.9 | 32 | 1.6 | 18 | 30 | 1.2 |
| 27 | 2.6 | 6.9 | 33 | 7.3 | 94 | 36 | 6.6 | 27 | 1.4 | 20 | 27 | 1.1 |
| 28 | 2.6 | 64 | 32 | 6.1 | 69 | 33 | 6.6 | 22 | 1.3 | 17 | 24 | 1.1 |
| 29 | 3.9 | 150 | 28 | 5.8 | --- | 30 | 6.3 | 19 | 1.3 | 14 | 21 | .95 |
| 30 | 4.2 | 78 | 24 | 5.6 | --- | 27 | 5.8 | 16 | 1.2 | 11 | 18 | .93 |
| 31 | 4.0 | --- | 22 | 5.7 | --- | 26 | --- | 14 | --- | 8.7 | 15 | --- |
| TOTAL | 69.4 | 465.1 | 741 | 603.6 | 966 | 798 | 406.7 | 823.7 | 154.8 | 185.2 | 680.5 | 111.18 |
| MEAN | 2.24 | 15.5 | 23.9 | 19.5 | 34.5 | 25.7 | 13.6 | 26.6 | 5.16 | 5.97 | 22.0 | 3.71 |
| MAX | 5.3 | 150 | 47 | 47 | 107 | 53 | 27 | 159 | 12 | 20 | 79 | 13 |
| MIN | 1.1 | 3.5 | 14 | 5.6 | 11 | 14 | 5.8 | 5.4 | 1.2 | 1.2 | 4.4 | .93 |
| CFSM | .13 | .90 | 1.39 | 1.13 | 2.01 | 1.49 | .79 | 1.55 | .30 | .35 | 1.28 | .22 |
| IN. | .15 | 1.01 | 1.60 | 1.31 | 2.09 | 1.73 | .88 | 1.78 | .33 | .40 | 1.47 | .24 |

| | TOTAL | | MEAN | | MAX | | MIN | | CFSM | | IN. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 10633.70 | MEAN | 29.1 | MAX | 380 | MIN | .63 | CFSM | 1.69 | IN. | 23.00 |
| WTR YR 1985 | TOTAL | 6005.18 | MEAN | 16.5 | MAX | 159 | MIN | .93 | CFSM | .96 | IN. | 12.99 |

## 01622000 NORTH RIVER NEAR BURKETOWN, VA

**LOCATION.**--Lat 38°20'25", long 78°54'50", Rockingham County, Hydrologic Unit 02070005, on right bank 0.8 mi downstream from Pleasant Run, 2.8 mi northeast of Burketown, and 8.5 mi upstream from Middle River.

**DRAINAGE AREA.**--379 mi$^2$.

**PERIOD OF RECORD.**--October 1925 to October 1972, May 1975 to current year. Monthly discharge only for some periods, published in WSP 1302.

**REVISED RECORDS.**--WSP 1171: 1936(M). WSP 1302: 1928-29(M), 1932-34(M), 1937-38(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 1,103.49 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1938, nonrecording gage at site 3.0 mi downstream at different datum.

**REMARKS.**--No estimated daily discharges. Records good. At a point 26.8 mi upstream from station, there is an aqueduct tunnel diversion of about 3.1 ft$^3$/s from Staunton Dam Reservoir by city of Staunton for industrial and municipal use. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--57 years, 371 ft$^3$/s, 13.29 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 62,600 ft$^3$/s, June 18, 1949, gage height, 36.3 ft, from floodmarks, from rating curve extended above 16,000 ft$^3$/s on basis of slope-area measurements at gage heights 32.4 ft and 36.3 ft, and contracted-opening measurement at gage height 36.3 ft; minimum, 16 ft$^3$/s, Nov. 23, 1985, result of temporary dam upstream.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Maximum stage since at least 1852, that of June 18, 1949.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1500 | *4,090 | *9.23 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 56 ft$^3$/s, Sept. 29, gage height, 1.89 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 244 | 111 | 1050 | 295 | 790 | 979 | 389 | 127 | 336 | 99 | 109 | 159 |
| 2 | 162 | 109 | 759 | 321 | 846 | 798 | 370 | 133 | 306 | 96 | 109 | 144 |
| 3 | 133 | 101 | 550 | 397 | 490 | 638 | 370 | 1110 | 277 | 94 | 101 | 136 |
| 4 | 127 | 106 | 418 | 644 | 432 | 540 | 362 | 1330 | 252 | 90 | 96 | 127 |
| 5 | 122 | 153 | 366 | 764 | 397 | 475 | 343 | 1000 | 255 | 109 | 99 | 117 |
| 6 | 117 | 136 | 397 | 786 | 382 | 428 | 321 | 781 | 241 | 85 | 99 | 111 |
| 7 | 114 | 127 | 343 | 798 | 362 | 382 | 302 | 578 | 220 | 85 | 92 | 106 |
| 8 | 117 | 124 | 302 | 742 | 321 | 355 | 280 | 450 | 230 | 85 | 109 | 106 |
| 9 | 117 | 124 | 280 | 644 | 298 | 339 | 266 | 358 | 220 | 101 | 94 | 104 |
| 10 | 117 | 122 | 269 | 550 | 291 | 321 | 248 | 310 | 210 | 101 | 87 | 94 |
| 11 | 111 | 127 | 262 | 485 | 284 | 306 | 241 | 287 | 190 | 99 | 83 | 94 |
| 12 | 109 | 122 | 269 | 423 | 2220 | 306 | 227 | 284 | 448 | 366 | 85 | 90 |
| 13 | 106 | 122 | 277 | 386 | 827 | 291 | 210 | 366 | 262 | 150 | 85 | 87 |
| 14 | 109 | 114 | 277 | 358 | 594 | 284 | 304 | 328 | 217 | 124 | 78 | 85 |
| 15 | 109 | 114 | 273 | 328 | 485 | 269 | 200 | 302 | 184 | 124 | 76 | 85 |
| 16 | 109 | 119 | 269 | 291 | 423 | 259 | 194 | 291 | 178 | 114 | 74 | 83 |
| 17 | 109 | 114 | 266 | 291 | 393 | 255 | 190 | 355 | 165 | 104 | 80 | 80 |
| 18 | 109 | 111 | 255 | 269 | 366 | 248 | 172 | 351 | 147 | 99 | 224 | 78 |
| 19 | 104 | 139 | 255 | 255 | 355 | 241 | 165 | 317 | 142 | 94 | 266 | 78 |
| 20 | 101 | 133 | 248 | 238 | 366 | 234 | 156 | 284 | 133 | 90 | 376 | 78 |
| 21 | 101 | 124 | 273 | 197 | 370 | 220 | 159 | 259 | 122 | 90 | 351 | 76 |
| 22 | 104 | 124 | 347 | 220 | 418 | 220 | 153 | 255 | 119 | 90 | 397 | 76 |
| 23 | 114 | 119 | 386 | 204 | 535 | 298 | 142 | 287 | 128 | 80 | 339 | 78 |
| 24 | 150 | 122 | 393 | 204 | 924 | 450 | 142 | 560 | 156 | 78 | 273 | 78 |
| 25 | 114 | 122 | 397 | 197 | 1350 | 583 | 156 | 742 | 119 | 87 | 338 | 72 |
| 26 | 111 | 124 | 374 | 187 | 1460 | 588 | 142 | 737 | 106 | 119 | 362 | 74 |
| 27 | 104 | 122 | 362 | 181 | 1410 | 550 | 139 | 588 | 101 | 117 | 284 | 72 |
| 28 | 104 | 256 | 347 | 181 | 1180 | 500 | 142 | 455 | 101 | 119 | 244 | 72 |
| 29 | 164 | 1670 | 328 | 175 | --- | 450 | 139 | 366 | 92 | 114 | 210 | 64 |
| 30 | 119 | 1430 | 310 | 172 | --- | 423 | 127 | 317 | 90 | 109 | 187 | 70 |
| 31 | 111 | --- | 302 | 175 | --- | 393 | --- | 313 | --- | 109 | 172 | --- |
| TOTAL | 3742 | 6641 | 11204 | 11358 | 18569 | 12623 | 6651 | 14201 | 5747 | 3421 | 5579 | 2774 |
| MEAN | 121 | 221 | 361 | 366 | 663 | 407 | 222 | 458 | 192 | 110 | 180 | 92.5 |
| MAX | 244 | 1670 | 1050 | 798 | 2220 | 979 | 389 | 1330 | 448 | 366 | 397 | 159 |
| MIN | 101 | 101 | 248 | 172 | 284 | 220 | 127 | 127 | 90 | 78 | 74 | 64 |
| CFSM | .32 | .58 | .95 | .97 | 1.75 | 1.07 | .59 | 1.21 | .51 | .29 | .47 | .24 |
| IN. | .37 | .65 | 1.10 | 1.11 | 1.82 | 1.24 | .65 | 1.39 | .56 | .34 | .55 | .27 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 189846 | MEAN | 519 | MAX | 5660 | MIN | 96 | CFSM | 1.37 | IN. | 18.63 |
| WTR YR 1985 | TOTAL | 102510 | MEAN | 281 | MAX | 2220 | MIN | 64 | CFSM | .74 | IN. | 10.06 |

## 01624300 MIDDLE RIVER NEAR VERONA, VA

**LOCATION.**--Lat 38°14'36", long 79°02'08", Augusta County, Hydrologic Unit 02070005, on right bank at downstream side of bridge on State Highway 742, 2.7 mi downstream from Moffett Creek, and 3.2 mi northwest of Verona.

**DRAINAGE AREA.**--178 mi².

**PERIOD OF RECORD.**--October 1967 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 1,260.78 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Oct. 8-26, Jan. 22-30, and Feb. 6, 7, 10, 11. Records good except those for period of no gage-height record, Oct. 8-26, and periods with ice effect, Jan. 22-30 and Feb. 6, 7, 10, 11, which are fair. Diurnal fluctuation at low flow caused by mill above station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--18 years, 182 ft³/s, 13.89 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 8,650 ft³/s, Sept. 6, 1979, gage height, 14.17 ft, from rating curve extended above 6,500 ft³/s; minimum, 3.7 ft³/s, Jan. 30, 1977, result of freezeup.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,400 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0230 | 1,500 | 5.35 | Aug. 18 | 1930 | *2,560 | *7.39 |

Minimum discharge, 46 ft³/s, Sept. 28, gage height, 0.74 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 120 | 103 | 321 | 106 | 405 | 308 | 165 | 74 | 94 | 61 | 65 | 76 |
| 2 | 100 | 95 | 239 | 226 | 848 | 271 | 158 | 79 | 87 | 68 | 75 | 72 |
| 3 | 81 | 89 | 198 | 323 | 455 | 234 | 159 | 701 | 84 | 61 | 67 | 70 |
| 4 | 76 | 88 | 168 | 496 | 334 | 208 | 153 | 501 | 83 | 59 | 63 | 66 |
| 5 | 77 | 138 | 154 | 488 | 281 | 193 | 144 | 298 | 95 | 56 | 60 | 64 |
| 6 | 77 | 157 | 172 | 411 | 280 | 173 | 137 | 214 | 99 | 57 | 58 | 62 |
| 7 | 73 | 139 | 162 | 376 | 270 | 157 | 129 | 168 | 86 | 57 | 59 | 60 |
| 8 | 72 | 124 | 138 | 338 | 215 | 150 | 123 | 143 | 86 | 54 | 62 | 60 |
| 9 | 73 | 116 | 137 | 284 | 186 | 144 | 115 | 126 | 81 | 58 | 443 | 58 |
| 10 | 71 | 108 | 137 | 251 | 170 | 135 | 111 | 114 | 78 | 57 | 147 | 57 |
| 11 | 70 | 106 | 144 | 228 | 155 | 132 | 107 | 106 | 80 | 59 | 90 | 56 |
| 12 | 68 | 103 | 152 | 206 | 530 | 141 | 103 | 103 | 82 | 184 | 79 | 56 |
| 13 | 68 | 93 | 154 | 182 | 397 | 129 | 98 | 99 | 74 | 154 | 79 | 54 |
| 14 | 67 | 87 | 150 | 175 | 274 | 123 | 98 | 94 | 73 | 112 | 67 | 53 |
| 15 | 68 | 86 | 141 | 158 | 229 | 119 | 96 | 97 | 70 | 88 | 64 | 52 |
| 16 | 72 | 83 | 136 | 140 | 201 | 116 | 99 | 94 | 71 | 77 | 66 | 52 |
| 17 | 75 | 80 | 131 | 145 | 185 | 114 | 98 | 109 | 70 | 73 | 64 | 51 |
| 18 | 72 | 81 | 124 | 138 | 183 | 112 | 91 | 97 | 69 | 68 | 821 | 50 |
| 19 | 71 | 94 | 126 | 132 | 239 | 109 | 87 | 91 | 65 | 65 | 885 | 49 |
| 20 | 70 | 126 | 123 | 112 | 359 | 106 | 85 | 87 | 63 | 63 | 340 | 49 |
| 21 | 70 | 123 | 142 | 106 | 412 | 103 | 85 | 83 | 62 | 62 | 234 | 49 |
| 22 | 85 | 117 | 243 | 105 | 397 | 107 | 83 | 82 | 62 | 60 | 164 | 49 |
| 23 | 112 | 109 | 251 | 102 | 430 | 159 | 81 | 96 | 62 | 60 | 126 | 50 |
| 24 | 140 | 106 | 231 | 98 | 591 | 283 | 80 | 185 | 63 | 57 | 112 | 49 |
| 25 | 105 | 100 | 221 | 95 | 584 | 276 | 90 | 257 | 59 | 63 | 125 | 48 |
| 26 | 90 | 97 | 189 | 91 | 534 | 236 | 83 | 199 | 57 | 73 | 119 | 47 |
| 27 | 81 | 92 | 180 | 90 | 476 | 202 | 80 | 153 | 56 | 73 | 110 | 48 |
| 28 | 81 | 176 | 170 | 89 | 372 | 184 | 82 | 130 | 56 | 72 | 100 | 48 |
| 29 | 155 | 1050 | 159 | 87 | --- | 171 | 79 | 116 | 57 | 67 | 90 | 47 |
| 30 | 130 | 483 | 148 | 86 | --- | 175 | 76 | 107 | 56 | 65 | 83 | 48 |
| 31 | 113 | --- | 165 | 96 | --- | 161 | --- | 100 | --- | 61 | 80 | --- |
| TOTAL | 2683 | 4549 | 5306 | 6040 | 9992 | 5231 | 3175 | 4903 | 2180 | 2244 | 4997 | 1650 |
| MEAN | 86.5 | 152 | 171 | 195 | 357 | 169 | 106 | 158 | 72.7 | 72.4 | 161 | 55.0 |
| MAX | 155 | 1050 | 321 | 496 | 848 | 308 | 165 | 701 | 99 | 184 | 885 | 76 |
| MIN | 67 | 80 | 123 | 86 | 155 | 103 | 76 | 74 | 56 | 54 | 58 | 47 |
| CFSM | .49 | .85 | .96 | 1.10 | 2.01 | .95 | .60 | .89 | .41 | .41 | .90 | .31 |
| IN. | .56 | .95 | 1.11 | 1.26 | 2.09 | 1.09 | .66 | 1.02 | .46 | .47 | 1.04 | .34 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 84735 | MEAN | 232 | MAX | 2130 | MIN | 66 | CFSM | 1.30 | IN. | 17.71 |
| WTR YR 1985 | TOTAL | 5295 | MEAN | 145 | MAX | 1050 | MIN | 47 | CFSM | .81 | IN. | 11.07 |

## 01624800 CHRISTIANS CREEK NEAR FISHERSVILLE, VA

**LOCATION.**--Lat 38°07'42", long 78°59'41", Augusta County, Hydrologic Unit 02070005, on right bank at upstream side of bridge on State Highway 794, 2.2 mi northwest of Fishersville, and 5.6 mi upstream from mouth.

**DRAINAGE AREA.**--70.1 mi$^2$.

**PERIOD OF RECORD.**--October 1967 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 1,230 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Jan. 22-30 and Feb. 6, 7, 10, 11. Records good except those for periods with ice effect, Jan. 22-30 and Feb. 6, 7, 10, 11, which are fair. Some diurnal fluctuation caused by discharge of about 1.8 ft$^3$/s from sewage treatment plant just upstream from station. Most of the water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--18 years, 71.4 ft$^3$/s, 13.83 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 3,850 ft$^3$/s, Oct. 5, 1972, gage height, 12.91 ft, from rating curve extended above 2,400 ft$^3$/s; minimum, 3.8 ft$^3$/s, Jan. 11, 1977, result of freezeup.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 1700 | 1,270 | 6.09 | July 12 | 1530 | 1,080 | 5.51 |
| Feb. 2 | 1030 | 1,030 | 5.35 | Aug. 18 | 1730 | 1,020 | 5.33 |
| Feb. 12 | 1400 | *1,490 | *6.77 | | | | |

Minimum discharge, 22 ft$^3$/s, July 8, Sept. 25, 28, 29, 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 103 | 38 | 71 | 59 | 640 | 79 | 77 | 34 | 38 | 32 | 44 | 34 |
| 2 | 50 | 37 | 61 | 63 | 660 | 75 | 64 | 38 | 35 | 31 | 46 | 34 |
| 3 | 40 | 35 | 58 | 123 | 204 | 70 | 60 | 114 | 35 | 27 | 33 | 32 |
| 4 | 37 | 36 | 53 | 259 | 129 | 67 | 56 | 54 | 37 | 25 | 30 | 31 |
| 5 | 35 | 46 | 53 | 205 | 105 | 66 | 53 | 43 | 73 | 24 | 28 | 30 |
| 6 | 34 | 39 | 70 | 142 | 102 | 60 | 51 | 40 | 47 | 24 | 28 | 29 |
| 7 | 33 | 36 | 62 | 120 | 98 | 58 | 50 | 37 | 41 | 24 | 28 | 28 |
| 8 | 34 | 35 | 56 | 101 | 82 | 58 | 50 | 35 | 40 | 22 | 28 | 28 |
| 9 | 34 | 34 | 59 | 86 | 69 | 56 | 47 | 34 | 36 | 25 | 26 | 27 |
| 10 | 33 | 33 | 61 | 81 | 67 | 54 | 45 | 32 | 34 | 24 | 25 | 28 |
| 11 | 33 | 34 | 64 | 77 | 62 | 54 | 44 | 33 | 40 | 25 | 25 | 27 |
| 12 | 32 | 33 | 62 | 70 | 780 | 56 | 44 | 33 | 36 | 475 | 31 | 27 |
| 13 | 32 | 32 | 60 | 65 | 170 | 52 | 43 | 36 | 32 | 149 | 29 | 25 |
| 14 | 32 | 32 | 55 | 64 | 100 | 49 | 42 | 32 | 31 | 125 | 25 | 25 |
| 15 | 32 | 31 | 54 | 60 | 84 | 47 | 43 | 32 | 30 | 70 | 23 | 25 |
| 16 | 36 | 31 | 51 | 55 | 78 | 46 | 48 | 32 | 30 | 58 | 24 | 25 |
| 17 | 33 | 31 | 50 | 59 | 72 | 45 | 44 | 46 | 30 | 54 | 26 | 24 |
| 18 | 33 | 31 | 48 | 57 | 73 | 44 | 40 | 35 | 30 | 46 | 430 | 24 |
| 19 | 32 | 56 | 48 | 55 | 90 | 44 | 38 | 32 | 27 | 43 | 154 | 23 |
| 20 | 31 | 46 | 46 | 46 | 111 | 43 | 37 | 29 | 28 | 39 | 76 | 23 |
| 21 | 31 | 39 | 60 | 43 | 143 | 42 | 36 | 28 | 26 | 37 | 77 | 23 |
| 22 | 33 | 36 | 59 | 41 | 154 | 47 | 36 | 28 | 26 | 35 | 60 | 24 |
| 23 | 56 | 36 | 52 | 40 | 117 | 82 | 35 | 37 | 30 | 34 | 50 | 24 |
| 24 | 63 | 35 | 51 | 40 | 108 | 70 | 36 | 182 | 37 | 31 | 46 | 23 |
| 25 | 40 | 34 | 51 | 39 | 101 | 59 | 72 | 195 | 27 | 41 | 65 | 23 |
| 26 | 36 | 33 | 47 | 39 | 126 | 53 | 42 | 70 | 25 | 41 | 59 | 23 |
| 27 | 34 | 33 | 46 | 39 | 100 | 50 | 38 | 55 | 25 | 43 | 49 | 23 |
| 28 | 49 | 214 | 45 | 38 | 84 | 48 | 43 | 48 | 26 | 35 | 44 | 22 |
| 29 | 135 | 191 | 44 | 38 | --- | 132 | 39 | 44 | 25 | 33 | 40 | 22 |
| 30 | 48 | 88 | 43 | 39 | --- | 116 | 35 | 43 | 25 | 31 | 38 | 22 |
| 31 | 41 | --- | 65 | 45 | --- | 77 | --- | 41 | --- | 29 | 36 | --- |
| TOTAL | 1325 | 1465 | 1705 | 2288 | 4709 | 1899 | 1388 | 1572 | 1002 | 1732 | 1723 | 778 |
| MEAN | 42.7 | 48.8 | 55.0 | 73.8 | 168 | 61.3 | 46.3 | 50.7 | 33.4 | 55.9 | 55.6 | 25.9 |
| MAX | 135 | 214 | 71 | 259 | 780 | 132 | 77 | 195 | 73 | 475 | 430 | 34 |
| MIN | 31 | 31 | 43 | 38 | 62 | 42 | 35 | 28 | 25 | 22 | 23 | 22 |
| CFSM | .61 | .70 | .78 | 1.05 | 2.40 | .87 | .66 | .72 | .48 | .80 | .79 | .37 |
| IN. | .70 | .78 | .90 | 1.21 | 2.50 | 1.01 | .74 | .83 | .53 | .92 | .91 | .41 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 41439 | MEAN | 113 | MAX | 1540 | MIN | 30 | CFSM 1.61 | IN. | 21.99 |
| WTR YR 1985 | TOTAL | 21586 | MEAN | 59.1 | MAX | 780 | MIN | 22 | CFSM .84 | IN. | 11.46 |

## 01625000 MIDDLE RIVER NEAR GROTTOES, VA

LOCATION.--Lat 38°15'42", long 78°51'44", Augusta County, Hydrologic Unit 02070005, on left bank at upstream side of bridge on State Highway 769 at Mount Meridian, 1.8 mi upstream from mouth, and 2.0 mi west of Grottoes.

DRAINAGE AREA.--375 $mi^2$.

PERIOD OF RECORD.--April 1927 to current year. Records for February 1925 to September 1926, published in WSP 601 and 621, are unreliable and should not be used.

REVISED RECORDS.--WSP 1051: 1928-29, 1930(M), 1932, 1935-37, 1938(M), 1940. WSP 1171: 1933. WSP 1302: 1928-29(M), 1931-34(M). WSP 2103: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,061.51 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20-31 and Feb. 7, 10, 11. Records good except those for periods with ice effect, Jan. 20-31 and Feb. 7, 10, 11, which are fair. At a point 24.4 mi upstream from station, there is a discharge of about 4.5 $ft^3/s$ from sewage treatment plant. Most of water discharged from the treatment plant was diverted from another drainage basin for industrial and municipal supply. Small diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--58 years, 310 $ft^3/s$, 11.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 $ft^3/s$, Mar. 18, 1936, gage height, 28.57 ft, from floodmarks, from rating curve extended above 15,000 $ft^3/s$; minimum, 19 $ft^3/s$, Jan. 12, 1981, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, that of Mar. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0430 | *2,630 | *9.43 | No peak equal to or greater than base discharge. | | | |

Minimum discharge, 92 $ft^3/s$, Sept. 29, gage height, 3.42 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 303 | 214 | 541 | 325 | 762 | 468 | 315 | 153 | 177 | 109 | 120 | 161 |
| 2 | 281 | 202 | 418 | 346 | 1900 | 423 | 298 | 154 | 164 | 150 | 168 | 153 |
| 3 | 196 | 188 | 355 | 433 | 1030 | 384 | 279 | 449 | 155 | 128 | 146 | 146 |
| 4 | 169 | 179 | 314 | 839 | 610 | 352 | 275 | 738 | 155 | 114 | 126 | 139 |
| 5 | 161 | 208 | 286 | 869 | 501 | 334 | 261 | 439 | 171 | 108 | 117 | 133 |
| 6 | 153 | 260 | 327 | 755 | 452 | 312 | 246 | 333 | 210 | 103 | 113 | 128 |
| 7 | 147 | 249 | 349 | 641 | 450 | 290 | 237 | 276 | 174 | 106 | 111 | 124 |
| 8 | 148 | 228 | 300 | 578 | 406 | 278 | 234 | 235 | 164 | 102 | 115 | 121 |
| 9 | 152 | 215 | 293 | 503 | 342 | 273 | 224 | 211 | 156 | 104 | 255 | 120 |
| 10 | 149 | 206 | 289 | 446 | 320 | 259 | 213 | 193 | 153 | 124 | 332 | 119 |
| 11 | 145 | 200 | 299 | 415 | 300 | 251 | 208 | 180 | 159 | 114 | 182 | 117 |
| 12 | 141 | 196 | 304 | 387 | 1580 | 260 | 203 | 173 | 157 | 681 | 137 | 114 |
| 13 | 142 | 188 | 302 | 355 | 989 | 253 | 197 | 175 | 145 | 593 | 156 | 112 |
| 14 | 139 | 175 | 293 | 337 | 539 | 239 | 192 | 168 | 133 | 320 | 128 | 108 |
| 15 | 141 | 169 | 280 | 325 | 437 | 231 | 193 | 166 | 130 | 247 | 111 | 108 |
| 16 | 148 | 166 | 266 | 290 | 387 | 223 | 195 | 166 | 128 | 199 | 112 | 106 |
| 17 | 159 | 161 | 258 | 300 | 353 | 220 | 204 | 205 | 127 | 177 | 138 | 107 |
| 18 | 153 | 158 | 250 | 298 | 348 | 216 | 187 | 195 | 126 | 158 | 450 | 104 |
| 19 | 148 | 193 | 246 | 281 | 346 | 210 | 179 | 165 | 122 | 144 | 1650 | 103 |
| 20 | 147 | 248 | 245 | 265 | 480 | 207 | 174 | 154 | 119 | 135 | 712 | 102 |
| 21 | 142 | 236 | 261 | 240 | 505 | 203 | 170 | 148 | 115 | 128 | 529 | 101 |
| 22 | 152 | 222 | 332 | 225 | 557 | 205 | 167 | 144 | 115 | 124 | 353 | 99 |
| 23 | 220 | 211 | 362 | 220 | 547 | 286 | 163 | 159 | 112 | 119 | 276 | 101 |
| 24 | 299 | 202 | 348 | 210 | 629 | 374 | 160 | 268 | 133 | 116 | 234 | 104 |
| 25 | 247 | 197 | 334 | 205 | 707 | 407 | 213 | 548 | 120 | 116 | 256 | 100 |
| 26 | 200 | 188 | 314 | 200 | 675 | 366 | 194 | 379 | 107 | 171 | 279 | 97 |
| 27 | 183 | 185 | 289 | 190 | 647 | 325 | 168 | 287 | 101 | 154 | 243 | 97 |
| 28 | 176 | 244 | 284 | 190 | 542 | 298 | 164 | 230 | 98 | 146 | 216 | 97 |
| 29 | 306 | 1120 | 272 | 185 | --- | 288 | 184 | 215 | 115 | 138 | 196 | 94 |
| 30 | 292 | 833 | 260 | 185 | --- | 413 | 161 | 196 | 104 | 130 | 180 | 94 |
| 31 | 236 | --- | 298 | 190 | --- | 326 | --- | 187 | --- | 124 | 169 | --- |
| TOTAL | 5775 | 7641 | 9569 | 11228 | 17341 | 9174 | 6258 | 7697 | 4145 | 5382 | 8310 | 3409 |
| MEAN | 186 | 255 | 309 | 362 | 619 | 296 | 209 | 248 | 138 | 174 | 268 | 114 |
| MAX | 306 | 1120 | 541 | 869 | 1900 | 468 | 315 | 738 | 210 | 681 | 1650 | 161 |
| MIN | 139 | 158 | 245 | 185 | 300 | 203 | 160 | 144 | 98 | 102 | 111 | 94 |
| CFSM | .50 | .68 | .82 | .97 | 1.65 | .79 | .56 | .66 | .37 | .46 | .71 | .30 |
| IN. | .57 | .76 | .95 | 1.11 | 1.72 | .91 | .62 | .76 | .41 | .53 | .82 | .34 |

CAL YR 1984 TOTAL 161183 MEAN 440 MAX 5340 MIN 135 CFSM 1.17 IN. 15.99
WTR YR 1985 TOTAL 95929 MEAN 263 MAX 1900 MIN 94 CFSM .70 IN. 9.53

## 01626000 SOUTH RIVER NEAR WAYNESBORO, VA

**LOCATION.**--Lat 38°03'27", long 78°54'30", Waynesboro City, Hydrologic Unit 02070005, on right bank 80 ft downstream from bridge on State Highway 664, 1.3 mi southwest of Waynesboro post office, and 2.4 mi downstream from Back Creek.

**DRAINAGE AREA.**--127 mi$^2$, of which 41 mi$^2$ are above flood-detention structures.

**PERIOD OF RECORD.**--October 1952 to current year.

**REVISED RECORDS.**--WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 1,296.20 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 22-31. Records good except those for period with ice effect, Jan. 22-31, which are fair. At a point 13.8 mi upstream from station, there is a diversion of about 1.8 ft$^3$/s from Coles Run Reservoir, capacity 80,000,000 gal., by Augusta County Service Authority for industrial and municipal use. Flow from 41 mi$^2$ upstream from station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--33 years, 140 ft$^3$/s, 14.97 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 17,400 ft$^3$/s, Aug. 20, 1969, gage height, 15.27 ft, from rating curve extended above 4,200 ft$^3$/s on basis of contracted-opening measurement at gage height 13.95 ft; minimum, 7.0 ft$^3$/s, July 18, 1966; minimum daily, 17 ft$^3$/s, Aug. 8, 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in October 1942 reached a stage of 14.3 ft, from floodmarks, discharge, 14,500 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1730 | *3,450 | *8.24 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 44 ft$^3$/s, July 4, 8, Aug. 13, 15, 16.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 101 | 59 | 218 | 96 | 218 | 227 | 179 | 91 | 121 | 58 | 63 | 129 |
| 2 | 85 | 56 | 168 | 95 | 432 | 210 | 163 | 91 | 107 | 65 | 97 | 118 |
| 3 | 67 | 54 | 147 | 120 | 379 | 188 | 156 | 144 | 101 | 58 | 73 | 108 |
| 4 | 60 | 54 | 129 | 203 | 236 | 172 | 148 | 148 | 102 | 53 | 63 | 100 |
| 5 | 56 | 66 | 120 | 212 | 189 | 165 | 139 | 135 | 159 | 51 | 58 | 93 |
| 6 | 54 | 67 | 131 | 194 | 172 | 150 | 133 | 125 | 115 | 50 | 55 | 87 |
| 7 | 53 | 61 | 117 | 194 | 166 | 140 | 128 | 113 | 101 | 50 | 54 | 82 |
| 8 | 53 | 57 | 106 | 184 | 140 | 138 | 128 | 105 | 98 | 47 | 57 | 77 |
| 9 | 52 | 55 | 103 | 162 | 124 | 136 | 118 | 97 | 89 | 48 | 53 | 75 |
| 10 | 52 | 54 | 105 | 149 | 121 | 127 | 112 | 90 | 81 | 50 | 50 | 72 |
| 11 | 52 | 55 | 110 | 142 | 117 | 123 | 108 | 89 | 97 | 54 | 48 | 70 |
| 12 | 52 | 54 | 115 | 132 | 513 | 129 | 105 | 90 | 87 | 147 | 48 | 67 |
| 13 | 52 | 52 | 116 | 122 | 481 | 118 | 101 | 94 | 77 | 164 | 47 | 65 |
| 14 | 52 | 51 | 110 | 120 | 321 | 115 | 100 | 84 | 72 | 121 | 46 | 64 |
| 15 | 51 | 50 | 105 | 114 | 226 | 109 | 105 | 83 | 69 | 86 | 45 | 62 |
| 16 | 53 | 50 | 103 | 102 | 185 | 104 | 110 | 83 | 68 | 70 | 46 | 61 |
| 17 | 54 | 49 | 101 | 108 | 163 | 103 | 105 | 112 | 67 | 69 | 48 | 59 |
| 18 | 53 | 50 | 97 | 107 | 160 | 101 | 95 | 115 | 65 | 61 | 1270 | 57 |
| 19 | 53 | 66 | 95 | 103 | 168 | 96 | 92 | 94 | 63 | 56 | 1260 | 56 |
| 20 | 52 | 74 | 93 | 90 | 196 | 94 | 89 | 84 | 64 | 53 | 712 | 55 |
| 21 | 51 | 64 | 97 | 79 | 187 | 92 | 87 | 77 | 59 | 51 | 599 | 54 |
| 22 | 52 | 61 | 103 | 90 | 197 | 99 | 85 | 75 | 57 | 49 | 444 | 54 |
| 23 | 57 | 58 | 94 | 83 | 220 | 174 | 83 | 94 | 56 | 48 | 348 | 55 |
| 24 | 77 | 58 | 90 | 80 | 254 | 228 | 84 | 258 | 66 | 46 | 290 | 54 |
| 25 | 64 | 56 | 90 | 78 | 269 | 222 | 111 | 542 | 58 | 77 | 313 | 52 |
| 26 | 58 | 55 | 86 | 75 | 303 | 198 | 97 | 353 | 54 | 127 | 367 | 50 |
| 27 | 54 | 54 | 83 | 74 | 292 | 180 | 90 | 248 | 53 | 82 | 266 | 50 |
| 28 | 56 | 220 | 83 | 74 | 254 | 165 | 95 | 198 | 51 | 76 | 220 | 50 |
| 29 | 99 | 587 | 83 | 73 | --- | 164 | 98 | 167 | 50 | 67 | 187 | 49 |
| 30 | 72 | 322 | 80 | 72 | --- | 185 | 94 | 148 | 50 | 62 | 161 | 48 |
| 31 | 63 | --- | 95 | 77 | --- | 170 | --- | 135 | --- | 56 | 145 | --- |
| TOTAL | 1860 | 2669 | 3373 | 3604 | 6683 | 4622 | 3338 | 4362 | 2357 | 2152 | 7533 | 2073 |
| MEAN | 60.0 | 89.0 | 109 | 116 | 239 | 149 | 111 | 141 | 78.6 | 69.4 | 243 | 69.1 |
| MAX | 101 | 587 | 218 | 212 | 513 | 228 | 179 | 542 | 159 | 164 | 1270 | 129 |
| MIN | 51 | 49 | 80 | 72 | 117 | 92 | 83 | 75 | 50 | 46 | 45 | 48 |
| CFSM | .47 | .70 | .86 | .91 | 1.88 | 1.17 | .87 | 1.11 | .62 | .55 | 1.91 | .54 |
| IN. | .54 | .78 | .99 | 1.06 | 1.96 | 1.35 | .98 | 1.28 | .69 | .63 | 2.21 | .61 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 75859 | MEAN | 207 | MAX | 1750 | MIN | 47 | CFSM | 1.63 | IN. 22.22 |
| WTR YR 1985 | TOTAL | 44626 | MEAN | 122 | MAX | 1270 | MIN | 45 | CFSM | .96 | IN. 13.07 |

## 01626850 SOUTH RIVER NEAR DOOMS, VA

**LOCATION.**--Lat 38°05'19", long 78°52'38", Augusta County, Hydrologic Unit 02070005, on left bank at downstream side of Hopeman Parkway Road bridge, 1.1 mi downstream from Steele Run, and 1.6 mi southwest of Dooms.

**DRAINAGE AREA.**--149 mi$^2$.

**PERIOD OF RECORD.**--April 1974 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 1,247.04 ft above National Geodetic Vertical Datum of 1929 (Norfolk and Western Railway bench mark). Prior to Sept. 18, 1980, nonrecording gage at site 30 ft upstream at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 22-31. Records good except those for period with ice effect, Jan. 22-31, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--11 years, 203 ft$^3$/s, 18.50 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge observed, 8,000 ft$^3$/s, Mar. 19, 1975, gage height, 12.02 ft; minimum discharge, 42 ft$^3$/s, Aug. 29, 30, 1981, gage height, 2.17 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2230 | 1,050 | 5.01 | Aug. 18 | 1830 | *4,260 | *10.20 |
| Feb. 12 | 0800 | 1,540 | 6.11 | | | | |

Minimum discharge, 55 ft$^3$/s, Aug. 14, 16, 17.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 152 | 86 | 257 | 119 | 300 | 267 | 219 | 113 | 142 | 73 | 91 | 149 |
| 2 | 117 | 84 | 200 | 118 | 522 | 248 | 203 | 114 | 125 | 77 | 110 | 136 |
| 3 | 94 | 80 | 175 | 162 | 430 | 227 | 193 | 175 | 118 | 71 | 89 | 123 |
| 4 | 86 | 84 | 154 | 253 | 283 | 208 | 184 | 175 | 119 | 67 | 78 | 115 |
| 5 | 82 | 92 | 145 | 263 | 229 | 200 | 175 | 161 | 202 | 66 | 73 | 108 |
| 6 | 79 | 94 | 165 | 241 | 210 | 184 | 167 | 151 | 135 | 65 | 69 | 101 |
| 7 | 78 | 85 | 141 | 238 | 199 | 173 | 158 | 137 | 116 | 64 | 68 | 95 |
| 8 | 78 | 81 | 127 | 226 | 172 | 169 | 160 | 125 | 114 | 63 | 70 | 91 |
| 9 | 78 | 81 | 123 | 203 | 153 | 166 | 147 | 117 | 105 | 68 | 68 | 89 |
| 10 | 77 | 80 | 123 | 183 | 151 | 157 | 140 | 110 | 97 | 64 | 65 | 86 |
| 11 | 77 | 80 | 129 | 174 | 144 | 153 | 136 | 115 | 109 | 67 | 63 | 82 |
| 12 | 77 | 79 | 136 | 163 | 979 | 159 | 131 | 109 | 102 | 190 | 62 | 80 |
| 13 | 77 | 78 | 137 | 149 | 573 | 147 | 126 | 113 | 90 | 184 | 59 | 77 |
| 14 | 78 | 77 | 131 | 148 | 375 | 142 | 124 | 103 | 86 | 130 | 57 | 75 |
| 15 | 80 | 77 | 128 | 140 | 277 | 137 | 129 | 99 | 81 | 101 | 58 | 74 |
| 16 | 90 | 77 | 124 | 131 | 231 | 132 | 139 | 99 | 81 | 83 | 69 | 72 |
| 17 | 84 | 76 | 122 | 133 | 203 | 128 | 130 | 140 | 82 | 80 | 60 | 70 |
| 18 | 82 | 79 | 119 | 129 | 197 | 126 | 120 | 133 | 80 | 73 | 1740 | 69 |
| 19 | 80 | 109 | 116 | 125 | 201 | 123 | 116 | 111 | 79 | 69 | 1620 | 68 |
| 20 | 78 | 109 | 114 | 115 | 228 | 120 | 112 | 100 | 77 | 65 | 824 | 67 |
| 21 | 78 | 95 | 122 | 110 | 219 | 117 | 110 | 94 | 74 | 63 | 671 | 66 |
| 22 | 82 | 91 | 125 | 105 | 227 | 135 | 108 | 91 | 70 | 62 | 476 | 66 |
| 23 | 94 | 88 | 115 | 97 | 249 | 227 | 105 | 118 | 71 | 61 | 367 | 66 |
| 24 | 102 | 86 | 111 | 96 | 281 | 285 | 110 | 327 | 76 | 59 | 312 | 66 |
| 25 | 91 | 85 | 112 | 92 | 301 | 274 | 139 | 637 | 69 | 106 | 360 | 63 |
| 26 | 84 | 84 | 106 | 90 | 333 | 246 | 122 | 392 | 66 | 154 | 401 | 63 |
| 27 | 80 | 83 | 104 | 89 | 329 | 226 | 112 | 285 | 64 | 101 | 304 | 63 |
| 28 | 107 | 339 | 103 | 88 | 293 | 207 | 123 | 228 | 63 | 93 | 254 | 63 |
| 29 | 137 | 721 | 102 | 87 | --- | 211 | 120 | 192 | 63 | 85 | 215 | 62 |
| 30 | 105 | 371 | 100 | 86 | --- | 228 | 116 | 172 | 62 | 78 | 187 | 62 |
| 31 | 92 | --- | 119 | 92 | --- | 210 | --- | 158 | --- | 71 | 168 | --- |
| TOTAL | 2776 | 3731 | 4085 | 4445 | 8289 | 5732 | 4174 | 5194 | 2818 | 2653 | 9108 | 2467 |
| MEAN | 89.5 | 124 | 132 | 143 | 296 | 185 | 139 | 168 | 93.9 | 85.6 | 294 | 82.2 |
| MAX | 152 | 721 | 257 | 263 | 979 | 285 | 219 | 637 | 202 | 190 | 1740 | 149 |
| MIN | 77 | 76 | 100 | 86 | 144 | 117 | 105 | 91 | 62 | 59 | 57 | 62 |
| CFSM | .60 | .83 | .89 | .96 | 1.99 | 1.24 | .93 | 1.13 | .63 | .57 | 1.97 | .55 |
| IN. | .69 | .93 | 1.02 | 1.11 | 2.07 | 1.43 | 1.04 | 1.30 | .70 | .66 | 2.27 | .62 |

CAL YR 1984 TOTAL 95597 MEAN 261 MAX 2790 MIN 76 CFSM 1.75 IN. 23.87
WTR YR 1985 TOTAL 55472 MEAN 152 MAX 1740 MIN 57 CFSM 1.02 IN. 13.85

## 01627500 SOUTH RIVER AT HARRISTON, VA

**LOCATION.**--Lat 38°13'07", long 78°50'13", Augusta County, Hydrologic Unit 02070005, on left bank 100 ft downstream from bridge on State Highway 778, 0.3 mi northwest of Harriston, 0.6 mi downstream from Paine Run, and 7.2 mi upstream from confluence with North River.

**DRAINAGE AREA.**--212 mi².

**PERIOD OF RECORD.**--February 1925 to September 1951, October 1968 to current year.

**REVISED RECORDS.**--WSP 1171: 1926(M), 1927-28, 1929-32(M), 1933, 1934(M), 1935, 1937. WSP 1302: 1937(M), 1938(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 1,129.87 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 22, 23, 25-31. Records good except those for periods with ice effect, Jan. 22, 23, 25-31, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--43 years, 255 ft³/s, 16.33 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 23,100 ft³/s, Oct. 15, 1942, gage height, 17.2 ft, from rating curve extended above 10,000 ft³/s; minimum, 17 ft³/s, Nov. 14, 1941.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Floods in 1870 and 1877 reached a stage of about 18.8 ft, from information by observer in 1925.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,200 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 0800 | 2,830 | 7.27 | Aug. 19 | 0130 | *3,550 | *7.91 |

Minimum discharge, 79 ft³/s, Aug. 15, gage height, 2.38 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 202 | 113 | 352 | 157 | 379 | 370 | 312 | 158 | 200 | 102 | 107 | 213 |
| 2 | 166 | 110 | 264 | 158 | 651 | 347 | 292 | 158 | 178 | 112 | 150 | 196 |
| 3 | 127 | 107 | 218 | 180 | 600 | 319 | 275 | 212 | 166 | 106 | 126 | 182 |
| 4 | 113 | 105 | 190 | 319 | 423 | 297 | 263 | 231 | 163 | 98 | 109 | 169 |
| 5 | 108 | 120 | 173 | 364 | 339 | 286 | 247 | 211 | 233 | 94 | 101 | 159 |
| 6 | 105 | 123 | 216 | 350 | 310 | 265 | 235 | 201 | 202 | 92 | 98 | 150 |
| 7 | 102 | 112 | 206 | 348 | 298 | 248 | 222 | 186 | 167 | 90 | 96 | 142 |
| 8 | 102 | 107 | 187 | 335 | 269 | 241 | 223 | 175 | 162 | 88 | 97 | 135 |
| 9 | 103 | 105 | 180 | 302 | 231 | 238 | 207 | 162 | 151 | 97 | 97 | 130 |
| 10 | 102 | 105 | 178 | 274 | 229 | 226 | 196 | 155 | 140 | 94 | 93 | 127 |
| 11 | 100 | 105 | 182 | 259 | 217 | 218 | 188 | 157 | 145 | 93 | 90 | 121 |
| 12 | 100 | 104 | 187 | 242 | 1770 | 222 | 183 | 155 | 150 | 221 | 87 | 118 |
| 13 | 99 | 102 | 186 | 223 | 908 | 212 | 178 | 154 | 130 | 258 | 87 | 113 |
| 14 | 99 | 101 | 182 | 212 | 594 | 203 | 173 | 146 | 122 | 171 | 84 | 109 |
| 15 | 99 | 100 | 175 | 200 | 450 | 196 | 182 | 136 | 119 | 150 | 81 | 109 |
| 16 | 113 | 99 | 169 | 182 | 370 | 188 | 195 | 139 | 115 | 120 | 84 | 107 |
| 17 | 105 | 98 | 165 | 184 | 328 | 184 | 189 | 185 | 115 | 109 | 102 | 102 |
| 18 | 106 | 99 | 161 | 182 | 316 | 181 | 175 | 186 | 117 | 106 | 905 | 102 |
| 19 | 105 | 133 | 156 | 175 | 309 | 176 | 167 | 160 | 109 | 100 | 2100 | 100 |
| 20 | 100 | 132 | 153 | 164 | 321 | 171 | 162 | 140 | 113 | 95 | 1050 | 99 |
| 21 | 99 | 121 | 161 | 135 | 313 | 166 | 158 | 129 | 107 | 93 | 851 | 98 |
| 22 | 101 | 112 | 166 | 140 | 311 | 176 | 155 | 126 | 102 | 90 | 621 | 99 |
| 23 | 112 | 110 | 156 | 130 | 329 | 288 | 150 | 148 | 102 | 89 | 482 | 100 |
| 24 | 136 | 108 | 146 | 122 | 363 | 389 | 149 | 285 | 109 | 86 | 407 | 99 |
| 25 | 126 | 107 | 143 | 122 | 395 | 394 | 191 | 770 | 104 | 102 | 425 | 96 |
| 26 | 113 | 106 | 137 | 121 | 436 | 361 | 178 | 538 | 96 | 204 | 520 | 94 |
| 27 | 107 | 105 | 130 | 121 | 446 | 330 | 161 | 389 | 94 | 141 | 420 | 94 |
| 28 | 105 | 222 | 127 | 120 | 405 | 304 | 164 | 313 | 92 | 125 | 352 | 93 |
| 29 | 191 | 880 | 126 | 120 | --- | 302 | 174 | 266 | 92 | 115 | 303 | 92 |
| 30 | 150 | 528 | 127 | 119 | --- | 327 | 161 | 237 | 91 | 108 | 264 | 90 |
| 31 | 122 | --- | 151 | 130 | --- | 301 | --- | 217 | --- | 102 | 238 | --- |
| TOTAL | 3618 | 4579 | 5450 | 6190 | 12310 | 8126 | 5905 | 6825 | 3986 | 3651 | 10627 | 3638 |
| MEAN | 117 | 153 | 176 | 200 | 440 | 262 | 197 | 220 | 133 | 118 | 343 | 121 |
| MAX | 202 | 880 | 352 | 364 | 1770 | 394 | 312 | 770 | 233 | 258 | 2100 | 213 |
| MIN | 99 | 98 | 126 | 119 | 217 | 166 | 149 | 126 | 91 | 86 | 81 | 90 |
| CFSM | .55 | .72 | .83 | .94 | 2.08 | 1.24 | .93 | 1.04 | .63 | .56 | 1.62 | .57 |
| IN. | .63 | .80 | .96 | 1.09 | 2.16 | 1.43 | 1.04 | 1.20 | .70 | .64 | 1.86 | .64 |

CAL YR 1984 TOTAL 131399 MEAN 359 MAX 3890 MIN 96 CFSM 1.69 IN. 23.06
WTR YR 1985 TOTAL 74905 MEAN 205 MAX 2100 MIN 81 CFSM .97 IN. 13.14

## 01628060 WHITE OAK RUN NEAR GROTTOES, VA

**LOCATION.**--Lat 38°15'01", long 78°44'57", Rockingham County, Hydrologic Unit 02070005, Shenandoah National Park, on left bank 700 ft upstream from Madison Run, 0.2 mi south of Madison Run Forest Trail, 1.4 mi upstream from southwest boundary of Shenandoah National Park, and 4.3 mi southeast of Grottoes.

**DRAINAGE AREA.**--1.94 mi$^2$.

**PERIOD OF RECORD.**--October 1979 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 1,480 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year.

**AVERAGE DISCHARGE.**--6 years, 2.42 ft$^3$/s, 16.94 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 200 ft$^3$/s, revised, Mar. 18, 1983, gage height, 3.90 ft; no flow many days in 1980-85.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 30 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 1845 | *33 | *2.14 | No other peak equal to or greater than base discharge. | | | |

No flow many days during October, July through September.

**REVISIONS.**--The peak discharges and annual maximum (*) reported for water years 1983 and 1984 have been revised as shown in the following table. They supersede figures published in the reports for 1983 and 1984.

| Water Year | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|
| 1983 | Feb. 3, 1983 | 0245 | 36 | 2.07 |
| | Mar. 18, 1983 | 2315 | *200 | *3.90 |
| | Apr. 2, 1983 | 2215 | 102 | 2.93 |
| | Apr. 10, 1983 | 0830 | 52 | 2.31 |
| | Apr. 24, 1983 | 1300 | 78 | 2.64 |
| 1984 | Dec. 12, 1983 | 2215 | 53 | 2.32 |
| | Feb. 14, 1984 | 1215 | *197 | *3.87 |
| | Mar. 29, 1984 | 0345 | 77 | 2.67 |
| | Apr. 5, 1984 | 0530 | 72 | 2.61 |

## 01628060 WHITE OAK RUN NEAR GROTTOES, VA--Continued

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .05 | .05 | 3.9 | .55 | .66 | 4.3 | 3.3 | .53 | .51 | .07 | .06 | .21 |
| 2 | .08 | .04 | 2.3 | 1.0 | 3.2 | 3.6 | 3.1 | .56 | .39 | .10 | .06 | .18 |
| 3 | .04 | .03 | 1.6 | 2.3 | 3.2 | 2.9 | 3.0 | .80 | .31 | .10 | .06 | .15 |
| 4 | .02 | .03 | 1.2 | 3.5 | 2.3 | 2.4 | 2.7 | .69 | .42 | .07 | .04 | .13 |
| 5 | .00 | .05 | .94 | 4.0 | 2.0 | 2.2 | 2.4 | .65 | .68 | .06 | .03 | .12 |
| 6 | .00 | .08 | .90 | 3.5 | 1.8 | 1.7 | 2.2 | .62 | .40 | .05 | .02 | .11 |
| 7 | .00 | .08 | .77 | 3.7 | 1.4 | 1.3 | 1.8 | .59 | .31 | .05 | .02 | .10 |
| 8 | .00 | .07 | .66 | 3.4 | 1.1 | 1.3 | 1.6 | .57 | .29 | .03 | .02 | .08 |
| 9 | .00 | .06 | .60 | 2.7 | .99 | 1.3 | 1.3 | .52 | .23 | .06 | .02 | .08 |
| 10 | .00 | .05 | .54 | 2.2 | .91 | 1.2 | 1.2 | .49 | .75 | .08 | .02 | .07 |
| 11 | .00 | .05 | .59 | 2.0 | .85 | 1.1 | 1.0 | .46 | 3.5 | .07 | .01 | .05 |
| 12 | .00 | .05 | .67 | 1.6 | 9.7 | 1.2 | .95 | .46 | 3.0 | .20 | .00 | .05 |
| 13 | .00 | .05 | .70 | 1.3 | 8.2 | 1.2 | .85 | .40 | 2.0 | .17 | .00 | .05 |
| 14 | .00 | .05 | .69 | 1.2 | 4.8 | 1.1 | .82 | .35 | 1.4 | .10 | .00 | .04 |
| 15 | .00 | .05 | .65 | 1.0 | 3.5 | 1.0 | .82 | .30 | .99 | .06 | .00 | .03 |
| 16 | .00 | .06 | .65 | .78 | 2.6 | .95 | .81 | .27 | .82 | .05 | .00 | .03 |
| 17 | .00 | .07 | .65 | .71 | 2.1 | .95 | .73 | .42 | .64 | .04 | .00 | .03 |
| 18 | .00 | .07 | .65 | .74 | 1.6 | .93 | .63 | .40 | .50 | .03 | 2.3 | .02 |
| 19 | .00 | .13 | .65 | .68 | 1.4 | .84 | .59 | .31 | .40 | .02 | 3.1 | .02 |
| 20 | .00 | .26 | .62 | .65 | 1.3 | .82 | .56 | .23 | .34 | .02 | 1.9 | .02 |
| 21 | .00 | .26 | .59 | .65 | 1.1 | .75 | .52 | .19 | .26 | .01 | 2.1 | .01 |
| 22 | .01 | .22 | .59 | .55 | 1.1 | .77 | .50 | .17 | .21 | .00 | 1.8 | .00 |
| 23 | .04 | .19 | .56 | .43 | 1.5 | 2.9 | .49 | .23 | .18 | .00 | 1.4 | .01 |
| 24 | .17 | .17 | .54 | .41 | 3.0 | 5.3 | .45 | .56 | .16 | .00 | .96 | .02 |
| 25 | .12 | .17 | .54 | .41 | 4.8 | 6.7 | .73 | 1.1 | .13 | .47 | .81 | .02 |
| 26 | .06 | .17 | .50 | .38 | 5.8 | 6.7 | .60 | 1.5 | .11 | .82 | .67 | .01 |
| 27 | .03 | .17 | .45 | .30 | 5.9 | 5.5 | .54 | 1.4 | .10 | .25 | .48 | .00 |
| 28 | .02 | 9.3 | .45 | .27 | 5.1 | 4.4 | .54 | 1.2 | .08 | .15 | .38 | .00 |
| 29 | .04 | 16 | .45 | .26 | --- | 3.6 | .54 | .93 | .08 | .11 | .32 | .00 |
| 30 | .10 | 7.4 | .45 | .23 | --- | 3.1 | .52 | .71 | .07 | .09 | .27 | .00 |
| 31 | .08 | --- | .53 | .22 | --- | 3.1 | --- | .61 | --- | .07 | .24 | --- |
| TOTAL | .86 | 35.43 | 25.58 | 41.62 | 81.91 | 75.11 | 35.79 | 18.22 | 19.26 | 3.40 | 17.09 | 1.64 |
| MEAN | .03 | 1.18 | .83 | 1.34 | 2.93 | 2.42 | 1.19 | .59 | .64 | .11 | .55 | .05 |
| MAX | .17 | 16 | 3.9 | 4.0 | 9.7 | 6.7 | 3.3 | 1.5 | 3.5 | .82 | 3.1 | .21 |
| MIN | .00 | .03 | .45 | .22 | .66 | .75 | .45 | .17 | .07 | .00 | .00 | .00 |
| CFSM | .01 | .61 | .43 | .69 | 1.51 | 1.25 | .61 | .30 | .33 | .06 | .28 | .03 |
| IN. | .02 | .68 | .49 | .80 | 1.57 | 1.44 | .69 | .35 | .37 | .07 | .33 | .03 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 1115.20 | MEAN | 3.05 | MAX | 199 | MIN | .00 | CFSM | 1.57 | IN. 21.38 |
| WTR YR 1985 | TOTAL | 355.91 | MEAN | .98 | MAX | 16 | MIN | .00 | CFSM | .51 | IN. 6.82 |

## 01628500 SOUTH FORK SHENANDOAH RIVER NEAR LYNNWOOD, VA

**LOCATION.**--Lat 38°19'21", long 78°45'18", Rockingham County, Hydrologic Unit 02070005, on left bank 1.2 mi northeast of Lynnwood and 3.3 mi downstream from confluence of North and South Rivers.

**DRAINAGE AREA.**--1,084 $mi^2$.

**PERIOD OF RECORD.**--September 1930 to current year.

**REVISED RECORDS.**--WSP 1171: 1933(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 1,013.17 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Oct. 24, Jan. 21-25, and Jan. 28 to Feb. 18. Records good except those for periods of no gage-height record, Oct. 24 and Jan. 28 to Feb. 18, and period with ice effect, Jan. 21-25, which are fair. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood. National Weather Service rain gage and gage-height telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--55 years, 1,001 $ft^3/s$, 12.54 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 80,000 $ft^3/s$, Oct. 15, 1942, gage height, 27.2 ft, from rating curve extended above 22,000 $ft^3/s$ on basis of computations of flow over dam at gage heights 23.60 ft and 27.2 ft; minimum, 32 $ft^3/s$, Sept. 20, 1932, gage height, 1.63 ft; minimum daily, 93 $ft^3/s$, Sept. 21, 29, 1930.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Maximum stage since at least 1870, that of Oct. 15, 1942.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 7,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | Unknown | *9,450 | *a10.84 | No other peak equal to or greater than base discharge. | | | |

a From high-water mark.

Minimum discharge, 294 $ft^3/s$, Aug. 16, gage height, 2.32 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 719 | 473 | 2030 | 836 | 1800 | 1750 | 1050 | 462 | 757 | 338 | 375 | 636 |
| 2 | 717 | 453 | 1520 | 878 | 4000 | 1610 | 998 | 464 | 699 | 393 | 445 | 594 |
| 3 | 511 | 429 | 1220 | 1050 | 3500 | 1400 | 956 | 1250 | 645 | 375 | 433 | 555 |
| 4 | 451 | 419 | 1020 | 1960 | 2100 | 1230 | 940 | 2480 | 605 | 341 | 388 | 530 |
| 5 | 429 | 485 | 914 | 2140 | 1600 | 1140 | 893 | 1710 | 665 | 344 | 363 | 497 |
| 6 | 413 | 551 | 996 | 1970 | 1350 | 1050 | 841 | 1350 | 705 | 319 | 352 | 476 |
| 7 | 401 | 522 | 981 | 1810 | 1300 | 959 | 804 | 1100 | 607 | 315 | 346 | 459 |
| 8 | 399 | 486 | 844 | 1690 | 1200 | 914 | 785 | 920 | 583 | 310 | 351 | 446 |
| 9 | 401 | 468 | 808 | 1490 | 1100 | 887 | 744 | 790 | 563 | 323 | 398 | 434 |
| 10 | 401 | 458 | 784 | 1320 | 1000 | 846 | 701 | 699 | 571 | 366 | 650 | 425 |
| 11 | 388 | 455 | 784 | 1210 | 940 | 814 | 674 | 647 | 551 | 344 | 422 | 407 |
| 12 | 381 | 447 | 790 | 1110 | 7000 | 826 | 654 | 631 | 752 | 1190 | 361 | 400 |
| 13 | 375 | 432 | 799 | 1020 | 5000 | 801 | 625 | 707 | 614 | 1300 | 362 | 385 |
| 14 | 374 | 415 | 793 | 958 | 2100 | 765 | 608 | 687 | 525 | 692 | 350 | 378 |
| 15 | 380 | 404 | 768 | 911 | 1350 | 738 | 607 | 642 | 482 | 592 | 317 | 373 |
| 16 | 412 | 403 | 752 | 819 | 1200 | 707 | 609 | 626 | 462 | 520 | 308 | 369 |
| 17 | 412 | 398 | 734 | 806 | 1050 | 691 | 617 | 728 | 452 | 450 | 359 | 362 |
| 18 | 400 | 394 | 710 | 802 | 1000 | 677 | 580 | 787 | 434 | 413 | 1130 | 352 |
| 19 | 393 | 459 | 696 | 765 | 1060 | 656 | 541 | 691 | 416 | 389 | 4440 | 348 |
| 20 | 378 | 541 | 694 | 719 | 1190 | 642 | 522 | 621 | 404 | 369 | 2430 | 344 |
| 21 | 372 | 501 | 716 | 680 | 1250 | 628 | 511 | 571 | 385 | 354 | 2130 | 341 |
| 22 | 377 | 476 | 880 | 650 | 1320 | 625 | 508 | 568 | 376 | 345 | 1540 | 335 |
| 23 | 504 | 460 | 954 | 620 | 1390 | 843 | 487 | 580 | 368 | 333 | 1270 | 339 |
| 24 | 640 | 446 | 946 | 600 | 1780 | 1150 | 478 | 942 | 435 | 318 | 1070 | 341 |
| 25 | 518 | 444 | 933 | 570 | 2390 | 1360 | 556 | 1960 | 383 | 328 | 1050 | 333 |
| 26 | 452 | 433 | 901 | 557 | 2590 | 1320 | 562 | 1690 | 347 | 501 | 1330 | 321 |
| 27 | 420 | 430 | 846 | 553 | 2580 | 1230 | 497 | 1320 | 324 | 462 | 1110 | 322 |
| 28 | 410 | 638 | 826 | 550 | 2240 | 1140 | 486 | 1080 | 319 | 441 | 955 | 318 |
| 29 | 654 | 3670 | 794 | 560 | --- | 1070 | 517 | 910 | 330 | 422 | 845 | 309 |
| 30 | 652 | 2990 | 765 | 560 | --- | 1190 | 480 | 799 | 320 | 396 | 756 | 309 |
| 31 | 518 | --- | 805 | 600 | --- | 1060 | --- | 738 | --- | 379 | 687 | --- |
| TOTAL | 14252 | 19580 | 28003 | 30764 | 56380 | 30729 | 19831 | 29150 | 15079 | 13962 | 27323 | 12038 |
| MEAN | 460 | 653 | 903 | 992 | 2014 | 991 | 661 | 940 | 503 | 450 | 881 | 401 |
| MAX | 719 | 3670 | 2030 | 2140 | 7000 | 1750 | 1050 | 2480 | 757 | 1300 | 4440 | 636 |
| MIN | 372 | 394 | 694 | 550 | 940 | 625 | 478 | 462 | 319 | 310 | 308 | 309 |
| CFSM | .42 | .60 | .83 | .92 | 1.86 | .91 | .61 | .87 | .46 | .42 | .81 | .37 |
| IN. | .49 | .67 | .96 | 1.06 | 1.93 | 1.05 | .68 | 1.00 | .52 | .48 | .94 | .41 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 520882 | MEAN | 1423 | MAX | 14000 | MIN | 369 | CFSM | 1.31 | IN. 17.88 |
| WTR YR 1985 | TOTAL | 297091 | MEAN | 814 | MAX | 7000 | MIN | 308 | CFSM | .75 | IN. 10.20 |

## 01629500 SOUTH FORK SHENANDOAH RIVER NEAR LURAY, VA

LOCATION.--Lat 38°38'46", long 78°32'06", Page County, Hydrologic Unit 02070005, on right bank between bridges on U.S. Highway 211, 1.2 mi downstream from Big Run, 2.2 mi upstream from Mill Creek, and 4.1 mi west of Luray.

DRAINAGE AREA.--1,377 mi$^2$.

PERIOD OF RECORD.--April 1925 to September 1930, October 1938 to September 1951, June 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 721.76 ft above National Geodetic Vertical Datum of 1929. April 1925 to September 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-30, Feb. 8, and Mar. 15 to Apr. 10. Records good except those for period of no gage-height record, Mar. 15 to Apr. 10, and periods with ice effect, Jan. 22-30 and Feb. 8, which are fair. Diurnal fluctuation at low and medium flow caused by powerplant 10 mi upstream from station. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--24 years, 1,313 ft$^3$/s, 12.95 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft$^3$/s, Oct. 16, 1942, gage height, 25.7 ft; minimum, 70 ft$^3$/s, Sept. 27, 1941, gage height, 2.15 ft; minimum daily, 135 ft$^3$/s, Sept. 16, 1925, Sept. 28, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 23.6 ft, from floodmarks, discharge, 81,600 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 8,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 13 | 0300 | *13,400 | *9.98 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 181 ft$^3$/s, Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 663 | 634 | 2860 | 1070 | 989 | 2280 | 1400 | 641 | 1090 | 457 | 431 | 638 |
| 2 | 932 | 568 | 2090 | 1130 | 4830 | 2010 | 1300 | 634 | 1020 | 477 | 439 | 603 |
| 3 | 884 | 525 | 1710 | 1280 | 4000 | 1790 | 1250 | 748 | 948 | 511 | 485 | 515 |
| 4 | 648 | 518 | 1460 | 1790 | 2180 | 1590 | 1200 | 2290 | 868 | 491 | 493 | 520 |
| 5 | 583 | 511 | 1290 | 2450 | 1740 | 1470 | 1150 | 2150 | 916 | 457 | 438 | 526 |
| 6 | 547 | 597 | 1270 | 2450 | 1570 | 1360 | 1100 | 1720 | 1010 | 437 | 418 | 485 |
| 7 | 525 | 641 | 1350 | 2200 | 1490 | 1280 | 1070 | 1520 | 980 | 411 | 398 | 368 |
| 8 | 511 | 605 | 1230 | 2110 | 1380 | 1200 | 1040 | 1200 | 900 | 392 | 402 | 412 |
| 9 | 511 | 504 | 1130 | 1910 | 1230 | 1160 | 1020 | 1060 | 868 | 422 | 368 | 434 |
| 10 | 504 | 498 | 1110 | 1730 | 1150 | 1120 | 1010 | 940 | 916 | 418 | 456 | 396 |
| 11 | 504 | 632 | 1080 | 1580 | 1130 | 1070 | 884 | 860 | 876 | 451 | 650 | 391 |
| 12 | 491 | 605 | 1090 | 1480 | 6430 | 1080 | 876 | 860 | 1210 | 492 | 465 | 376 |
| 13 | 470 | 547 | 1100 | 1370 | 8540 | 1050 | 844 | 892 | 1130 | 1840 | 406 | 367 |
| 14 | 464 | 532 | 1110 | 1300 | 3240 | 1010 | 812 | 924 | 900 | 1150 | 362 | 356 |
| 15 | 477 | 511 | 1080 | 1230 | 2210 | 980 | 804 | 868 | 780 | 807 | 373 | 354 |
| 16 | 470 | 498 | 1060 | 1150 | 1820 | 940 | 804 | 828 | 740 | 683 | 297 | 353 |
| 17 | 511 | 484 | 1030 | 1100 | 1610 | 920 | 788 | 900 | 709 | 580 | 254 | 359 |
| 18 | 511 | 484 | 1020 | 1110 | 1460 | 900 | 788 | 980 | 702 | 521 | 427 | 352 |
| 19 | 504 | 511 | 980 | 1070 | 1380 | 880 | 748 | 964 | 626 | 493 | 4380 | 340 |
| 20 | 491 | 643 | 972 | 1020 | 1370 | 860 | 694 | 868 | 612 | 459 | 3810 | 343 |
| 21 | 484 | 678 | 980 | 788 | 1500 | 840 | 694 | 796 | 597 | 448 | 2590 | 340 |
| 22 | 470 | 619 | 1050 | 660 | 1510 | 820 | 678 | 748 | 568 | 438 | 1840 | 345 |
| 23 | 491 | 597 | 1160 | 680 | 1630 | 1000 | 702 | 772 | 554 | 433 | 1460 | 353 |
| 24 | 597 | 583 | 1220 | 700 | 1820 | 1400 | 656 | 868 | 561 | 409 | 1240 | 354 |
| 25 | 694 | 568 | 1200 | 720 | 2450 | 1700 | 702 | 1570 | 590 | 398 | 1060 | 354 |
| 26 | 641 | 568 | 1170 | 720 | 2940 | 1600 | 772 | 2150 | 525 | 448 | 1190 | 355 |
| 27 | 525 | 532 | 1120 | 700 | 3000 | 1500 | 725 | 1730 | 504 | 637 | 1290 | 357 |
| 28 | 518 | 632 | 1070 | 700 | 2710 | 1400 | 686 | 1450 | 437 | 573 | 1070 | 344 |
| 29 | 547 | 4000 | 1060 | 720 | --- | 1400 | 678 | 1250 | 437 | 514 | 878 | 339 |
| 30 | 748 | 4580 | 1020 | 730 | --- | 1500 | 709 | 1110 | 457 | 504 | 782 | 354 |
| 31 | 748 | --- | 1010 | 732 | --- | 1400 | --- | 1280 | --- | 474 | 698 | --- |
| TOTAL | 17664 | 24405 | 38082 | 38380 | 67309 | 39510 | 26584 | 35571 | 23031 | 17225 | 29850 | 11983 |
| MEAN | 570 | 814 | 1228 | 1238 | 2404 | 1275 | 886 | 1147 | 768 | 556 | 963 | 399 |
| MAX | 932 | 4580 | 2860 | 2450 | 8540 | 2280 | 1400 | 2290 | 1210 | 1840 | 4380 | 638 |
| MIN | 464 | 484 | 972 | 660 | 989 | 820 | 656 | 634 | 437 | 392 | 254 | 339 |
| CFSM | .41 | .59 | .89 | .90 | 1.75 | .93 | .64 | .83 | .56 | .40 | .70 | .29 |
| IN. | .48 | .66 | 1.03 | 1.04 | 1.82 | 1.07 | .72 | .96 | .62 | .47 | .81 | .32 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 715055 | MEAN | 1954 | MAX | 25300 | MIN | 464 | CFSM 1.42 | IN. | 19.32 |
| WTR YR 1985 | TOTAL | 369594 | MEAN | 1013 | MAX | 8540 | MIN | 254 | CFSM .74 | IN. | 9.98 |

## 01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

**LOCATION.**--Lat 38°41'50", long 78°12'40", Warren County, Hydrologic Unit 02070005, on left bank 0.7 mi downstream from bridge on State Highway 619, 1.0 mi west of Front Royal, and 3.5 mi upstream from confluence with North Fork.
**DRAINAGE AREA.**--1,642 mi$^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--June 1899 to September 1906, September 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.
**REVISED RECORDS.**--WSP 951: 1936(M). WSP 1171: 1935(M), 1937(M). WSP 2103: Drainage area.
**GAGE.**--Water-stage recorder. Datum of gage is 469.38 ft above National Geodetic Vertical Datum of 1929. June 1899 to July 1906, nonrecording gage at site 1.0 mi upstream at different datum.
**REMARKS.**--Estimated daily discharges: Jan. 21-30. Records good except those for period with ice effect, Jan. 21-30, which are fair. Large diurnal fluctuation at low and medium flow caused by powerplants upstream from station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station.
**AVERAGE DISCHARGE.**--62 years, 1,597 ft$^3$/s, 13.21 in/yr.
**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 130,000 ft$^3$/s, Oct. 16, 1942, gage height, 34.8 ft, from floodmark in gage well, from rating curve extended above 92,000 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 59 ft$^3$/s, Jan. 30, 1934, gage height, 0.56 ft; minimum daily, 103 ft$^3$/s, Sept. 30, 1930.
**EXTREMES OUTSIDE PERIOD OF RECORD.**--Maximum stage since at least 1870, that of Oct. 16, 1942.
**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 8,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 13 | 1230 | *13,000 | *8.39 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 239 ft$^3$/s, Aug. 19; minimum daily, 330 ft$^3$/s, Sept. 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 746 | 792 | 3900 | 997 | 964 | 2870 | 1580 | 743 | 1780 | 416 | 486 | 856 |
| 2 | 747 | 683 | 2810 | 1100 | 2830 | 2510 | 1410 | 719 | 1240 | 442 | 451 | 827 |
| 3 | 940 | 626 | 2170 | 1230 | 5030 | 2210 | 1390 | 787 | 1110 | 528 | 403 | 778 |
| 4 | 883 | 603 | 1750 | 1460 | 3180 | 1970 | 1320 | 865 | 999 | 542 | 407 | 702 |
| 5 | 680 | 626 | 1470 | 2410 | 2210 | 1810 | 1270 | 2770 | 952 | 534 | 515 | 641 |
| 6 | 584 | 588 | 1380 | 2770 | 1860 | 1710 | 1210 | 2150 | 1140 | 504 | 454 | 647 |
| 7 | 557 | 652 | 1350 | 2640 | 1690 | 1520 | 1140 | 1790 | 1170 | 421 | 415 | 656 |
| 8 | 545 | 711 | 1380 | 2440 | 1590 | 1330 | 1090 | 1490 | 1120 | 448 | 413 | 547 |
| 9 | 536 | 670 | 1210 | 2290 | 1550 | 1260 | 1060 | 1250 | 1030 | 425 | 401 | 504 |
| 10 | 536 | 598 | 1130 | 2060 | 1230 | 1230 | 1020 | 1100 | 881 | 431 | 382 | 580 |
| 11 | 515 | 554 | 1100 | 1830 | 1170 | 1210 | 955 | 1000 | 879 | 446 | 366 | 535 |
| 12 | 525 | 669 | 1080 | 1670 | 6730 | 1170 | 910 | 862 | 918 | 457 | 716 | 495 |
| 13 | 505 | 671 | 1090 | 1540 | 11700 | 1080 | 904 | 991 | 1290 | 499 | 538 | 480 |
| 14 | 500 | 602 | 1150 | 1450 | 5130 | 1130 | 865 | 956 | 1110 | 2040 | 465 | 466 |
| 15 | 483 | 583 | 1090 | 1270 | 3290 | 1050 | 844 | 974 | 843 | 1280 | 397 | 438 |
| 16 | 499 | 573 | 1040 | 1270 | 2520 | 999 | 822 | 925 | 763 | 898 | 364 | 432 |
| 17 | 496 | 559 | 1030 | 1170 | 2100 | 976 | 833 | 946 | 707 | 742 | 381 | 416 |
| 18 | 520 | 561 | 1000 | 1100 | 1830 | 962 | 814 | 1020 | 674 | 597 | 354 | 410 |
| 19 | 533 | 608 | 984 | 1120 | 1650 | 926 | 810 | 1050 | 643 | 517 | 360 | 412 |
| 20 | 524 | 630 | 964 | 984 | 1540 | 904 | 792 | 1000 | 623 | 483 | 5670 | 386 |
| 21 | 508 | 700 | 926 | 770 | 1560 | 876 | 728 | 910 | 548 | 438 | 3860 | 375 |
| 22 | 506 | 741 | 966 | 720 | 1700 | 870 | 726 | 838 | 534 | 415 | 3080 | 368 |
| 23 | 511 | 681 | 1030 | 670 | 1750 | 977 | 708 | 855 | 523 | 399 | 2290 | 363 |
| 24 | 542 | 633 | 1140 | 780 | 1940 | 1230 | 722 | 856 | 531 | 385 | 1900 | 367 |
| 25 | 621 | 633 | 1220 | 720 | 2370 | 1740 | 685 | 925 | 524 | 371 | 1670 | 368 |
| 26 | 718 | 618 | 1160 | 710 | 3110 | 2020 | 726 | 1860 | 529 | 413 | 1440 | 362 |
| 27 | 690 | 612 | 1130 | 720 | 3320 | 1950 | 780 | 2070 | 525 | 429 | 1640 | 405 |
| 28 | 584 | 773 | 1080 | 770 | 3240 | 1810 | 769 | 1700 | 462 | 575 | 1650 | 379 |
| 29 | 645 | 2810 | 1070 | 740 | --- | 1680 | 732 | 1490 | 462 | 643 | 1400 | 348 |
| 30 | 608 | 5220 | 1030 | 800 | --- | 1580 | 710 | 1210 | 392 | 534 | 1120 | 330 |
| 31 | 798 | --- | 1020 | 816 | --- | 1560 | --- | 1320 | --- | 523 | 1030 | --- |
| TOTAL | 18585 | 25980 | 40850 | 41017 | 78784 | 45120 | 28325 | 37422 | 24902 | 17775 | 35018 | 14873 |
| MEAN | 600 | 866 | 1318 | 1323 | 2814 | 1455 | 944 | 1207 | 830 | 573 | 1130 | 496 |
| MAX | 940 | 5220 | 3900 | 2770 | 11700 | 2870 | 1580 | 2770 | 1780 | 2040 | 5670 | 856 |
| MIN | 483 | 554 | 926 | 670 | 964 | 870 | 685 | 719 | 392 | 371 | 354 | 330 |
| CFSM | .37 | .53 | .80 | .81 | 1.71 | .89 | .57 | .74 | .51 | .35 | .69 | .30 |
| IN. | .42 | .59 | .93 | .93 | 1.78 | 1.02 | .64 | .85 | .56 | .40 | .79 | .34 |

```
CAL YR 1984   TOTAL    821209     MEAN     2244     MAX    35100     MIN      483     CFSM  1.37      IN.   18.60
WTR YR 1985   TOTAL    408651     MEAN     1120     MAX    11700     MIN      330     CFSM   .68      IN.    9.26
```

## 01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949, 1953-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to September 1977, October 1979 to August 1980.
WATER TEMPERATURE: October 1952 to September 1956, April 1968 to September 1977, October 1979 to August 1980.
SUSPENDED-SEDIMENT DISCHARGE: April 1953 to September 1956.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 10... | 08:30 | 537 | 368 | 366 | 8.7 | 8.7 | 17.5 | 755 | <1 | 9.3 |
| NOV | | | | | | | | | | |
| 13... | 13:30 | 644 | 362 | 366 | 8.8 | 8.7 | 8.0 | 750 | 5 | 14.1 |
| DEC | | | | | | | | | | |
| 18... | 09:00 | 1000 | 324 | 311 | 8.2 | 8.2 | 10.0 | 750 | <1 | 10.6 |
| FEB | | | | | | | | | | |
| 04... | 15:15 | 2870 | 240 | 245 | -- | 7.3 | 2.0 | 759 | 95 | 12.8 |
| MAR | | | | | | | | | | |
| 20... | 11:00 | 906 | 279 | 281 | 8.7 | 8.6 | 9.5 | 746 | 10 | 12.7 |
| MAY | | | | | | | | | | |
| 08... | 09:00 | 1480 | 172 | 172 | 7.8 | 7.6 | 17.0 | 750 | 10 | 7.6 |
| JUN | | | | | | | | | | |
| 19... | 08:45 | 634 | 264 | 256 | 8.8 | 8.8 | 23.5 | 741 | 10 | 8.1 |
| AUG | | | | | | | | | | |
| 05... | 10:45 | 528 | 317 | 312 | 9.1 | 9.1 | 25.0 | 753 | 15 | 10.2 |
| SEP | | | | | | | | | | |
| 17... | 09:30 | 423 | 332 | 327 | 9.0 | 8.7 | 18.5 | 754 | 10 | 8.6 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 10... | 98 | 170 | 174 | 45 | 15 | 11 | 3.3 | 155 | 22 |
| NOV | | | | | | | | | |
| 13... | 121 | 180 | 177 | 46 | 15 | 12 | 2.8 | 159 | 23 |
| DEC | | | | | | | | | |
| 18... | 95 | 140 | 143 | 39 | 11 | 9.4 | 2.0 | 127 | 21 |
| FEB | | | | | | | | | |
| 04... | 93 | 96 | 96 | 27 | 6.9 | 6.2 | 8.8 | 77 | 17 |
| MAR | | | | | | | | | |
| 20... | 114 | 120 | 124 | 33 | 10 | 8.3 | 1.8 | 116 | 17 |
| MAY | | | | | | | | | |
| 08... | 80 | 73 | 73 | 20 | 5.6 | 4.4 | 1.7 | 64 | 14 |
| JUN | | | | | | | | | |
| 19... | 98 | 110 | 111 | 29 | 9.4 | 8.3 | 2.7 | 103 | 18 |
| AUG | | | | | | | | | |
| 05... | 125 | 160 | 155 | 39 | 14 | 8.3 | 2.6 | 147 | 17 |
| SEP | | | | | | | | | |
| 17... | 93 | 150 | 146 | 37 | 13 | 13 | 3.5 | 138 | 21 |

## 01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLORIDE, DIS-SOLVED (MG/L AS CL) | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) | NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) | NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 10... | 12 | <0.1 | 2.9 | 205 | 200 | <0.01 | 1.80 | 0.18 | 8 |
| NOV | | | | | | | | | |
| 13... | 13 | 0.1 | 3.0 | 202 | 120 | <0.01 | 1.80 | 0.18 | 11 |
| DEC | | | | | | | | | |
| 18... | 11 | <0.1 | 0.4 | 159 | 170 | <0.01 | 1.20 | 0.09 | 9 |
| FEB | | | | | | | | | |
| 04... | 16 | <0.1 | 4.2 | 167 | 130 | 0.04 | 1.50 | 0.63 | 85 |
| MAR | | | | | | | | | |
| 20... | 8.7 | 0.1 | 0.2 | 163 | 150 | <0.01 | 1.00 | 0.04 | 20 |
| MAY | | | | | | | | | |
| 08... | 4.7 | <0.1 | 6.5 | 109 | 96 | 0.09 | 1.00 | 0.14 | 35 |
| JUN | | | | | | | | | |
| 19... | 8.5 | 0.1 | 4.8 | 165 | 140 | <0.01 | 1.20 | 0.17 | 12 |
| AUG | | | | | | | | | |
| 05... | 11 | 0.2 | 0.6 | 193 | 180 | <0.01 | 0.61 | 0.23 | 9 |
| SEP | | | | | | | | | |
| 17... | 13 | 0.1 | 0.1 | 189 | 180 | <0.01 | 0.18 | 0.13 | 6 |

## 01632000 NORTH FORK SHENANDOAH RIVER AT COOTES STORE, VA

**LOCATION.**--Lat 38°38'13", long 78°51'11", Rockingham County, Hydrologic Unit 02070006, on right bank at Cootes Store, 300 ft upstream from bridge on State Highway 259, and 3.7 mi upstream from Linville Creek.

**DRAINAGE AREA.**--210 $mi^2$.

**PERIOD OF RECORD.**--February 1925 to current year.

**REVISED RECORDS.**--WSP 726: 1928-31. WSP 951: 1936, 1939(M). WSP 1171: 1935, 1937, 1938(M). WSP 1502: 1926, 1927-28(M), 1929, 1930-34(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder and concrete control. Datum of gage is 1,051.8 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 15, 1937, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 21-25. Records good except those for period with ice effect, Jan. 21-25, which are fair. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--60 years, 191 $ft^3/s$, 12.35 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 50,000 $ft^3/s$, Oct. 15, 1942, gage height, 25.3 ft, from floodmark, from rating curve extended above 9,000 $ft^3/s$ on basis of contracted-opening measurement of peak flow; minimum, 0.20 $ft^3/s$, Aug. 28, 29, Sept. 4, 1957, Sept. 7-10, 1966; minimum gage height, 1.74 ft, Sept. 7-10, 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Maximum stage since at least 1836, that of Oct. 15, 1942.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 3,500 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2330 | 3,570 | 7.77 | May 31 | 1400 | *4,850 | *9.01 |

Minimum discharge, 1.8 $ft^3/s$, Sept. 30, gage height, 1.89 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 23 | 306 | 87 | 135 | 363 | 204 | 31 | 1290 | 13 | 8.5 | 15 |
| 2 | 13 | 20 | 210 | 138 | 306 | 300 | 197 | 35 | 492 | 12 | 8.5 | 13 |
| 3 | 15 | 18 | 165 | 267 | 217 | 240 | 193 | 338 | 304 | 12 | 7.3 | 12 |
| 4 | 14 | 18 | 136 | 338 | 162 | 202 | 181 | 451 | 223 | 11 | 6.2 | 11 |
| 5 | 13 | 34 | 118 | 361 | 151 | 183 | 162 | 316 | 236 | 13 | 5.8 | 9.1 |
| 6 | 11 | 36 | 120 | 328 | 149 | 162 | 151 | 229 | 218 | 13 | 5.4 | 7.9 |
| 7 | 10 | 30 | 102 | 326 | 131 | 141 | 137 | 178 | 187 | 12 | 5.0 | 6.9 |
| 8 | 9.6 | 26 | 90 | 296 | 100 | 131 | 125 | 144 | 266 | 10 | 6.3 | 6.5 |
| 9 | 9.7 | 23 | 82 | 237 | 109 | 125 | 115 | 119 | 258 | 11 | 5.0 | 6.3 |
| 10 | 9.4 | 22 | 79 | 194 | 108 | 115 | 105 | 101 | 202 | 12 | 4.4 | 5.6 |
| 11 | 8.8 | 22 | 83 | 173 | 97 | 109 | 96 | 95 | 157 | 13 | 4.2 | 5.0 |
| 12 | 8.3 | 21 | 94 | 148 | 662 | 119 | 89 | 90 | 164 | 13 | 4.0 | 4.7 |
| 13 | 7.9 | 19 | 101 | 129 | 633 | 114 | 81 | 115 | 136 | 12 | 3.7 | 4.1 |
| 14 | 7.7 | 18 | 96 | 118 | 346 | 109 | 76 | 103 | 114 | 11 | 3.5 | 3.7 |
| 15 | 7.5 | 17 | 92 | 107 | 251 | 105 | 74 | 107 | 94 | 10 | 3.0 | 3.5 |
| 16 | 7.6 | 17 | 86 | 88 | 195 | 98 | 73 | 109 | 80 | 9.3 | 2.9 | 3.3 |
| 17 | 7.5 | 16 | 83 | 87 | 170 | 94 | 69 | 149 | 66 | 7.9 | 3.3 | 3.0 |
| 18 | 7.5 | 16 | 78 | 79 | 155 | 92 | 63 | 153 | 54 | 6.8 | 7.1 | 2.8 |
| 19 | 7.5 | 24 | 74 | 75 | 164 | 86 | 57 | 131 | 44 | 6.0 | 9.0 | 2.6 |
| 20 | 7.4 | 35 | 71 | 55 | 208 | 80 | 53 | 109 | 37 | 5.3 | 7.2 | 2.5 |
| 21 | 7.3 | 38 | 83 | 34 | 228 | 76 | 50 | 97 | 32 | 4.9 | 13 | 2.3 |
| 22 | 7.3 | 33 | 118 | 34 | 324 | 77 | 48 | 130 | 27 | 4.6 | 12 | 2.2 |
| 23 | 9.1 | 29 | 125 | 33 | 648 | 244 | 45 | 355 | 26 | 4.0 | 9.5 | 2.3 |
| 24 | 18 | 27 | 125 | 34 | 1160 | 490 | 42 | 663 | 26 | 3.5 | 8.8 | 2.1 |
| 25 | 13 | 25 | 124 | 35 | 1120 | 476 | 44 | 474 | 21 | 4.7 | 26 | 2.0 |
| 26 | 13 | 23 | 112 | 37 | 823 | 386 | 40 | 320 | 18 | 12 | 41 | 2.0 |
| 27 | 12 | 23 | 103 | 34 | 641 | 316 | 38 | 219 | 16 | 13 | 68 | 2.1 |
| 28 | 12 | 563 | 99 | 37 | 466 | 267 | 40 | 163 | 15 | 12 | 30 | 2.0 |
| 29 | 51 | 1580 | 94 | 33 | --- | 237 | 38 | 131 | 14 | 11 | 21 | 2.0 |
| 30 | 32 | 521 | 91 | 28 | --- | 219 | 34 | 108 | 13 | 9.0 | 18 | 1.9 |
| 31 | 26 | --- | 90 | 32 | --- | 199 | --- | 2190 | --- | 8.0 | 17 | --- |
| TOTAL | 396.1 | 3317 | 3430 | 4002 | 9859 | 5955 | 2720 | 7953 | 4830 | 300.0 | 374.6 | 149.4 |
| MEAN | 12.8 | 111 | 111 | 129 | 352 | 192 | 90.7 | 257 | 161 | 9.68 | 12.1 | 4.98 |
| MAX | 51 | 1580 | 306 | 361 | 1160 | 490 | 204 | 2190 | 1290 | 13 | 68 | 15 |
| MIN | 7.3 | 16 | 71 | 28 | 97 | 76 | 34 | 31 | 13 | 3.5 | 2.9 | 1.9 |
| CFSM | .06 | .53 | .53 | .61 | 1.68 | .91 | .43 | 1.22 | .77 | .05 | .06 | .02 |
| IN. | .07 | .59 | .61 | .71 | 1.75 | 1.05 | .48 | 1.41 | .86 | .05 | .07 | .03 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 83930.3 | MEAN | 229 | MAX | 5140 | MIN | 2.6 | CFSM | 1.09 | IN. | 14.87 |
| WTR YR 1985 | TOTAL | 43286.1 | MEAN | 119 | MAX | 2190 | MIN | 1.9 | CFSM | .57 | IN. | 7.67 |

## 01632900 SMITH CREEK NEAR NEW MARKET, VA

**LOCATION.**--Lat 38°41'36", long 78°38'35", Shenandoah County, Hydrologic Unit 02070006, on left bank 25 ft upstream from bridge on State Highway 616, 3.6 mi north of New Market, and 4.4 mi upstream from mouth.

**DRAINAGE AREA.**--93.2 mi$^2$.

**PERIOD OF RECORD.**--August 1960 to current year.

**REVISED RECORDS.**--WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 881.50 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 2, 1963, on right bank a short distance downstream, at datum 0.71 ft higher.

**REMARKS.**--Estimated daily discharges: Jan. 21-30 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 21-30 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--25 years, 73.3 ft$^3$/s, 10.68 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 10,600 ft$^3$/s, Oct. 6, 1972, gage height, 16.38 ft, from rating curve extended above 2,300 ft$^3$/s on basis of contracted-opening measurement of peak flow; minimum, 4.5 ft$^3$/s, Feb. 9, 1981, result of freezeup.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Oct. 1, 1959, reached a stage of 10.7 ft, discharge not determined, from information by local residents.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 650 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0330 | 1,030 | 6.25 | Feb. 12 | 1500 | *2,950 | *10.11 |

Minimum discharge, 9.0 ft$^3$/s, Sept. 21.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 48 | 34 | 87 | 38 | 248 | 69 | 53 | 28 | 83 | 20 | 18 | 17 |
| 2 | 44 | 33 | 73 | 52 | 341 | 67 | 50 | 28 | 54 | 21 | 19 | 16 |
| 3 | 30 | 31 | 64 | 72 | 133 | 63 | 48 | 56 | 46 | 23 | 18 | 15 |
| 4 | 27 | 30 | 57 | 90 | 96 | 60 | 48 | 52 | 42 | 23 | 17 | 15 |
| 5 | 25 | 42 | 53 | 95 | 81 | 58 | 46 | 39 | 43 | 24 | 16 | 14 |
| 6 | 24 | 36 | 58 | 94 | 75 | 54 | 45 | 34 | 46 | 23 | 16 | 13 |
| 7 | 24 | 33 | 59 | 89 | 72 | 52 | 44 | 31 | 42 | 23 | 16 | 13 |
| 8 | 25 | 30 | 53 | 85 | 62 | 52 | 44 | 29 | 52 | 20 | 17 | 14 |
| 9 | 26 | 30 | 52 | 77 | 56 | 51 | 43 | 28 | 42 | 25 | 17 | 14 |
| 10 | 26 | 29 | 52 | 71 | 52 | 49 | 42 | 28 | 37 | 27 | 16 | 13 |
| 11 | 26 | 30 | 54 | 68 | 52 | 48 | 42 | 27 | 34 | 26 | 16 | 12 |
| 12 | 26 | 29 | 56 | 64 | 1330 | 50 | 42 | 28 | 72 | 30 | 16 | 12 |
| 13 | 26 | 28 | 53 | 60 | 264 | 46 | 41 | 37 | 48 | 27 | 15 | 11 |
| 14 | 26 | 27 | 51 | 58 | 142 | 46 | 41 | 37 | 39 | 24 | 14 | 11 |
| 15 | 25 | 26 | 49 | 56 | 109 | 43 | 42 | 30 | 35 | 21 | 14 | 11 |
| 16 | 26 | 26 | 47 | 52 | 95 | 42 | 42 | 34 | 34 | 21 | 14 | 11 |
| 17 | 26 | 27 | 45 | 52 | 86 | 42 | 41 | 64 | 33 | 20 | 14 | 11 |
| 18 | 27 | 27 | 42 | 52 | 79 | 41 | 39 | 49 | 30 | 19 | 20 | 10 |
| 19 | 27 | 38 | 42 | 51 | 76 | 39 | 37 | 38 | 28 | 18 | 34 | 10 |
| 20 | 28 | 42 | 42 | 47 | 72 | 40 | 36 | 34 | 28 | 18 | 25 | 10 |
| 21 | 28 | 37 | 46 | 37 | 69 | 39 | 36 | 32 | 27 | 18 | 36 | 9.4 |
| 22 | 28 | 34 | 51 | 35 | 67 | 40 | 36 | 32 | 26 | 18 | 26 | 10 |
| 23 | 30 | 33 | 45 | 39 | 72 | 59 | 34 | 37 | 25 | 17 | 21 | 10 |
| 24 | 35 | 32 | 43 | 43 | 80 | 80 | 34 | 43 | 23 | 16 | 20 | 11 |
| 25 | 34 | 30 | 42 | 43 | 81 | 71 | 35 | 42 | 22 | 17 | 24 | 10 |
| 26 | 31 | 29 | 40 | 42 | 83 | 59 | 34 | 36 | 21 | 22 | 27 | 9.7 |
| 27 | 30 | 29 | 39 | 42 | 80 | 54 | 31 | 33 | 20 | 25 | 28 | 11 |
| 28 | 30 | 138 | 38 | 42 | 73 | 53 | 33 | 31 | 20 | 22 | 21 | 11 |
| 29 | 41 | 497 | 38 | 41 | --- | 53 | 31 | 31 | 20 | 20 | 19 | 11 |
| 30 | 42 | 126 | 38 | 41 | --- | 53 | 29 | 30 | 20 | 18 | 18 | 10 |
| 31 | 35 | --- | 38 | 40 | --- | 51 | --- | 180 | --- | 18 | 18 | --- |
| TOTAL | 926 | 1613 | 1547 | 1768 | 4126 | 1624 | 1199 | 1258 | 1092 | 664 | 610 | 356.1 |
| MEAN | 29.9 | 53.8 | 49.9 | 57.0 | 147 | 52.4 | 40.0 | 40.6 | 36.4 | 21.4 | 19.7 | 11.9 |
| MAX | 48 | 497 | 87 | 95 | 1330 | 80 | 53 | 180 | 83 | 30 | 36 | 17 |
| MIN | 24 | 26 | 38 | 35 | 52 | 39 | 29 | 27 | 20 | 16 | 14 | 9.4 |
| CFSM | .32 | .58 | .54 | .61 | 1.58 | .56 | .43 | .44 | .39 | .23 | .21 | .13 |
| IN. | .37 | .64 | .62 | .71 | 1.65 | .65 | .48 | .50 | .44 | .27 | .24 | .14 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 42846 | MEAN | 117 | MAX | 2510 | MIN | 24 | CFSM | 1.26 | IN. | 17.10 |
| WTR YR 1985 | TOTAL | 16783.1 | MEAN | 46.0 | MAX | 1330 | MIN | 9.4 | CFSM | .49 | IN. | 6.70 |

## 01633000 NORTH FORK SHENANDOAH RIVER AT MOUNT JACKSON, VA

**LOCATION.**--Lat 38°44'43", long 78°38'21", Shenandoah County, Hydrologic Unit 02070006, on right bank at upstream side of bridge on State Highway 698 at Mount Jackson and 0.4 mi downstream from Mill Creek.

**DRAINAGE AREA.**--506 mi².

**PERIOD OF RECORD.**--October 1943 to current year.

**REVISED RECORDS.**--WSP 1382: 1945, 1948-50(M), 1951-53(P), 1954(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 838.55 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1976, nonrecording gage, and July 1, 1976, to Oct. 23, 1981, water-stage recorder, at site 400 ft upstream at same datum.

**REMARKS.**--Estimated daily discharges: Dec. 3-5, Jan. 16, 20-29, and Feb. 9, 10. Records good except those for period of doubtful gage-height record, Dec. 3-5, and periods with ice effect, Jan. 16, 20-29 and Feb. 9, 10, which are fair. Some diversion during low flow by irrigation at points upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--42 years, 388 ft³/s, 10.41 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 40,500 ft³/s, Oct. 6, 1972, gage height, 18.10 ft, from rating curve extended above 18,000 ft³/s on basis of peak runoff for flood in October 1942 for stations at Cootes Store and near Strasburg; minimum observed, 7.0 ft³/s, Sept. 3, 1966, gage height, 1.97 ft.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in October 1942 reached a stage of 20.2 ft, from floodmarks, discharge, about 80,000 ft³/s, from rating curve extended as explained above.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 5,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1800 | *6,960 | *9.90 | May 31 | 1830 | 5,210 | 8.69 |

Minimum discharge, 24 ft³/s, Sept. 26, 29.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 153 | 128 | 640 | 198 | 589 | 646 | 356 | 98 | 1970 | 69 | 61 | 57 |
| 2 | 187 | 121 | 451 | 228 | 1240 | 545 | 352 | 98 | 872 | 80 | 63 | 54 |
| 3 | 128 | 112 | 385 | 451 | 657 | 466 | 334 | 306 | 560 | 80 | 57 | 51 |
| 4 | 109 | 112 | 320 | 630 | 480 | 398 | 320 | 662 | 422 | 71 | 54 | 48 |
| 5 | 101 | 131 | 280 | 690 | 422 | 370 | 293 | 495 | 403 | 78 | 52 | 43 |
| 6 | 93 | 150 | 293 | 662 | 398 | 329 | 272 | 370 | 408 | 71 | 50 | 39 |
| 7 | 90 | 140 | 289 | 635 | 384 | 302 | 251 | 285 | 352 | 74 | 47 | 38 |
| 8 | 85 | 128 | 255 | 608 | 298 | 280 | 232 | 232 | 422 | 67 | 52 | 38 |
| 9 | 85 | 121 | 239 | 535 | 240 | 268 | 216 | 198 | 451 | 79 | 53 | 41 |
| 10 | 85 | 115 | 228 | 437 | 240 | 251 | 201 | 169 | 375 | 92 | 48 | 37 |
| 11 | 80 | 115 | 232 | 398 | 251 | 239 | 194 | 156 | 306 | 89 | 44 | 34 |
| 12 | 78 | 112 | 239 | 356 | 3720 | 243 | 183 | 150 | 412 | 101 | 44 | 34 |
| 13 | 78 | 107 | 247 | 316 | 1640 | 235 | 176 | 318 | 311 | 92 | 41 | 33 |
| 14 | 76 | 101 | 239 | 293 | 866 | 228 | 166 | 216 | 251 | 88 | 39 | 31 |
| 15 | 76 | 98 | 232 | 272 | 640 | 216 | 163 | 176 | 220 | 76 | 37 | 32 |
| 16 | 74 | 98 | 220 | 230 | 525 | 208 | 160 | 205 | 198 | 70 | 38 | 31 |
| 17 | 71 | 98 | 208 | 243 | 451 | 201 | 156 | 414 | 176 | 64 | 39 | 30 |
| 18 | 71 | 101 | 201 | 228 | 418 | 190 | 146 | 343 | 156 | 59 | 55 | 30 |
| 19 | 74 | 128 | 194 | 216 | 389 | 183 | 140 | 272 | 140 | 56 | 87 | 29 |
| 20 | 74 | 153 | 190 | 190 | 427 | 176 | 131 | 232 | 124 | 54 | 71 | 29 |
| 21 | 78 | 153 | 194 | 140 | 446 | 169 | 128 | 198 | 115 | 54 | 78 | 28 |
| 22 | 80 | 143 | 251 | 130 | 510 | 166 | 124 | 208 | 109 | 53 | 76 | 28 |
| 23 | 88 | 137 | 264 | 130 | 762 | 235 | 121 | 318 | 104 | 51 | 64 | 31 |
| 24 | 109 | 128 | 259 | 130 | 1320 | 723 | 118 | 902 | 101 | 48 | 60 | 29 |
| 25 | 112 | 128 | 259 | 140 | 1430 | 740 | 121 | 767 | 93 | 50 | 72 | 28 |
| 26 | 101 | 124 | 243 | 140 | 1180 | 630 | 115 | 545 | 80 | 75 | 121 | 25 |
| 27 | 96 | 118 | 224 | 130 | 1020 | 520 | 112 | 394 | 76 | 99 | 141 | 28 |
| 28 | 98 | 339 | 216 | 130 | 800 | 446 | 112 | 302 | 74 | 88 | 110 | 27 |
| 29 | 150 | 1740 | 212 | 130 | --- | 398 | 109 | 251 | 71 | 75 | 80 | 27 |
| 30 | 173 | 1030 | 205 | 131 | --- | 394 | 104 | 212 | 69 | 67 | 69 | 28 |
| 31 | 137 | --- | 198 | 140 | --- | 352 | --- | 2090 | --- | 61 | 60 | --- |
| TOTAL | 3090 | 6409 | 8107 | 9287 | 21743 | 10747 | 5606 | 11582 | 9421 | 2231 | 1963 | 1038 |
| MEAN | 99.7 | 214 | 262 | 300 | 777 | 347 | 187 | 374 | 314 | 72.0 | 63.3 | 34.6 |
| MAX | 187 | 1740 | 640 | 690 | 3720 | 740 | 356 | 2090 | 1970 | 101 | 141 | 57 |
| MIN | 71 | 98 | 190 | 130 | 240 | 166 | 104 | 98 | 69 | 48 | 37 | 25 |
| CFSM | .20 | .42 | .52 | .59 | 1.54 | .69 | .37 | .74 | .62 | .14 | .13 | .07 |
| IN. | .23 | .47 | .60 | .68 | 1.60 | .79 | .41 | .85 | .69 | .16 | .14 | .08 |

CAL YR 1984 TOTAL 202560 MEAN 553 MAX 9830 MIN 71 CFSM 1.09 IN. 14.89
WTR YR 1985 TOTAL 91224 MEAN 250 MAX 3720 MIN 25 CFSM .49 IN. 6.71

## 01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA

LOCATION.--Lat 38°58'36", long 78°20'11", Warren County, Hydrologic Unit 02070006, on right bank at downstream side of bridge on State Highway 55, 1.5 mi southeast of Strasburg, 2.2 mi upstream from Cedar Creek, and 10 mi upstream from confluence with South Fork.

DRAINAGE AREA.--768 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1001: 1931. WSP 1171: 1929(M), 1933(M), 1936-37. WSP 1302: 1928(M), 1930(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 494.03 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20 to Feb. 10. Records good except those for period with ice effect, Jan. 20 to Feb. 10, which are fair. Large diurnal fluctuation at low and medium flow from unknown cause. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--60 years, 588 ft$^3$/s, 10.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft$^3$/s, Oct. 16, 1942, gage height, 31.2 ft, from high-water mark in well, from rating curve extended above 46,000 ft$^3$/s; minimum, 6.0 ft$^3$/s, Feb. 9, 1934, gage height, 1.52 ft; minimum daily, 41 ft$^3$/s, Sept. 26, Oct. 1, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | ---- | Unknown | Ice jam | Feb. 13 | 0030 | *7,720 | *10.36 |

Minimum discharge, 39 ft$^3$/s, Sept. 28, gage height, 1.61 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 219 | 225 | 1170 | 319 | 260 | 987 | 525 | 200 | 3330 | 127 | 89 | 135 |
| 2 | 213 | 210 | 801 | 299 | 1100 | 832 | 525 | 185 | 1810 | 142 | 131 | 163 |
| 3 | 291 | 199 | 620 | 358 | 1700 | 725 | 513 | 220 | 1040 | 141 | 110 | 101 |
| 4 | 253 | 164 | 528 | 611 | 860 | 640 | 492 | 255 | 729 | 160 | 77 | 150 |
| 5 | 212 | 215 | 456 | 839 | 700 | 569 | 476 | 732 | 605 | 172 | 115 | 97 |
| 6 | 178 | 191 | 438 | 893 | 680 | 526 | 447 | 585 | 571 | 137 | 129 | 125 |
| 7 | 186 | 190 | 413 | 837 | 620 | 481 | 414 | 467 | 559 | 140 | 87 | 108 |
| 8 | 169 | 196 | 422 | 792 | 560 | 443 | 395 | 390 | 496 | 136 | 111 | 118 |
| 9 | 168 | 203 | 350 | 746 | 480 | 417 | 369 | 343 | 535 | 158 | 98 | 114 |
| 10 | 169 | 193 | 345 | 653 | 410 | 402 | 332 | 322 | 583 | 158 | 118 | 92 |
| 11 | 173 | 181 | 349 | 580 | 482 | 387 | 329 | 226 | 502 | 151 | 110 | 65 |
| 12 | 164 | 179 | 319 | 532 | 2930 | 391 | 320 | 248 | 435 | 182 | 79 | 85 |
| 13 | 174 | 165 | 353 | 483 | 5190 | 363 | 299 | 261 | 463 | 158 | 110 | 100 |
| 14 | 114 | 173 | 349 | 444 | 1730 | 366 | 299 | 340 | 430 | 154 | 124 | 137 |
| 15 | 157 | 156 | 377 | 433 | 1140 | 352 | 270 | 338 | 346 | 172 | 100 | 88 |
| 16 | 161 | 142 | 308 | 454 | 884 | 342 | 276 | 271 | 339 | 160 | 83 | 59 |
| 17 | 163 | 158 | 319 | 365 | 735 | 334 | 263 | 286 | 289 | 158 | 112 | 61 |
| 18 | 155 | 149 | 332 | 341 | 652 | 314 | 272 | 470 | 283 | 170 | 116 | 121 |
| 19 | 153 | 206 | 268 | 347 | 609 | 291 | 253 | 445 | 261 | 105 | 114 | 87 |
| 20 | 164 | 191 | 266 | 300 | 575 | 292 | 245 | 373 | 223 | 107 | 133 | 59 |
| 21 | 253 | 164 | 322 | 260 | 606 | 289 | 216 | 334 | 210 | 86 | 140 | 73 |
| 22 | 202 | 105 | 303 | 240 | 616 | 282 | 219 | 272 | 208 | 106 | 199 | 152 |
| 23 | 160 | 179 | 305 | 230 | 701 | 315 | 250 | 295 | 179 | 127 | 163 | 152 |
| 24 | 171 | 208 | 372 | 280 | 1110 | 418 | 210 | 370 | 185 | 108 | 88 | 110 |
| 25 | 166 | 192 | 367 | 260 | 1670 | 968 | 209 | 976 | 178 | 86 | 161 | 109 |
| 26 | 174 | 234 | 357 | 230 | 1640 | 927 | 210 | 824 | 181 | 102 | 163 | 55 |
| 27 | 175 | 261 | 349 | 210 | 1430 | 787 | 210 | 632 | 133 | 173 | 107 | 65 |
| 28 | 170 | 293 | 338 | 240 | 1220 | 676 | 208 | 489 | 169 | 93 | 190 | 51 |
| 29 | 205 | 1780 | 291 | 220 | --- | 614 | 185 | 407 | 156 | 155 | 204 | 81 |
| 30 | 185 | 2260 | 308 | 210 | --- | 571 | 203 | 346 | 130 | 157 | 191 | 93 |
| 31 | 218 | --- | 298 | 230 | --- | 553 | --- | 347 | --- | 136 | 169 | --- |
| TOTAL | 5715 | 9362 | 12413 | 13236 | 31290 | 15854 | 9434 | 12249 | 15558 | 4317 | 3921 | 3006 |
| MEAN | 184 | 312 | 400 | 427 | 1118 | 511 | 314 | 395 | 519 | 139 | 126 | 100 |
| MAX | 291 | 2260 | 1170 | 893 | 5190 | 987 | 525 | 976 | 3330 | 182 | 204 | 163 |
| MIN | 114 | 105 | 266 | 210 | 260 | 282 | 185 | 185 | 130 | 86 | 77 | 51 |
| CFSM | .24 | .41 | .52 | .56 | 1.46 | .67 | .41 | .51 | .68 | .18 | .16 | .13 |
| IN. | .28 | .45 | .60 | .64 | 1.52 | .77 | .46 | .59 | .75 | .21 | .19 | .15 |

CAL YR 1984 TOTAL 303609 MEAN 830 MAX 14300 MIN 105 CFSM 1.08 IN. 14.71
WTR YR 1985 TOTAL 136355 MEAN 374 MAX 5190 MIN 51 CFSM .49 IN. 6.60

## 01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1949, 1952, 1956, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to September 1956.
WATER TEMPERATURE: October 1948 to September 1949, October 1955 to September 1956.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT<br>10... | 13:20 | 189 | 433 | 434 | 8.5 | 8.5 | 17.5 | 755 | 2 | 12.8 |
| NOV<br>13... | 11:15 | 115 | 445 | 448 | 8.5 | 8.3 | 7.0 | 749 | <1 | 13.2 |
| DEC<br>18... | 12:45 | 333 | 406 | 393 | 8.3 | 8.1 | 10.0 | 750 | 5 | 12.2 |
| MAR<br>20... | 09:45 | 282 | 333 | 339 | 8.2 | 8.1 | 8.0 | 746 | 10 | 11.7 |
| MAY<br>08... | 14:45 | 383 | 212 | 217 | 8.4 | 8.2 | 19.0 | 749 | 10 | 10.2 |
| JUN<br>19... | 08:45 | 267 | 303 | 297 | 8.9 | 8.9 | 24.0 | 741 | 5 | 12.0 |
| AUG<br>05... | 15:00 | 76 | 339 | 337 | 9.1 | 9.0 | 25.0 | 751 | 10 | 13.4 |
| SEP<br>17... | 13:15 | 64 | 418 | 405 | 8.7 | 8.6 | 18.0 | 752 | 10 | 13.9 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT<br>10... | 135 | 200 | 198 | 48 | 19 | 16 | 2.5 | 175 | 18 |
| NOV<br>13... | 111 | 210 | 209 | 54 | 18 | 17 | 2.2 | 191 | 19 |
| DEC<br>18... | 110 | 180 | 183 | 50 | 14 | 11 | 1.9 | 159 | 20 |
| MAR<br>20... | 101 | 160 | 157 | 43 | 12 | 6.3 | 1.6 | 142 | 17 |
| MAY<br>08... | 112 | 100 | 101 | 28 | 7.6 | 4.4 | 1.4 | 90 | 13 |
| JUN<br>19... | 147 | 140 | 138 | 37 | 11 | 8.5 | 2.2 | 128 | 15 |
| AUG<br>05... | 165 | 150 | 150 | 32 | 17 | 14 | 2.7 | 141 | 18 |
| SEP<br>17... | 149 | 160 | 163 | 34 | 19 | 23 | 3.4 | 151 | 19 |

## 01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 10... | 24 | <0.1 | 0.5 | 224 | 230 | <0.01 | 1.10 | <0.01 | 9 |
| NOV 13... | 24 | <0.1 | 1.1 | 254 | 250 | <0.01 | 1.10 | 0.02 | 16 |
| DEC 18... | 17 | <0.1 | 2.7 | 220 | 210 | <0.01 | 1.90 | 0.07 | 10 |
| MAR 20... | 10 | 0.1 | 0.1 | 205 | 180 | <0.01 | 1.10 | 0.02 | 17 |
| MAY 08... | 6.0 | <0.1 | 4.7 | 128 | 120 | <0.01 | 0.58 | 0.10 | 21 |
| JUN 19... | 12 | <0.1 | 1.7 | 183 | 160 | <0.01 | 0.93 | 0.10 | 11 |
| AUG 05... | 22 | 0.1 | 2.1 | 195 | 190 | <0.01 | <0.10 | 0.10 | 12 |
| SEP 17... | 32 | 0.1 | 1.4 | 221 | 220 | <0.01 | <0.10 | 0.02 | 10 |

## 01634500 CEDAR CREEK NEAR WINCHESTER, VA

**LOCATION.**--Lat 39°04'52", long 78°19'47", Frederick County, Hydrologic Unit 02070006, on left bank 0.2 mi upstream from Fawcett Run, 0.3 mi upstream from bridge on State Highway 628, 1.3 mi downstream from Froman Run, and 11.4 mi southwest of Winchester.

**DRAINAGE AREA.**--103 $mi^2$.

**PERIOD OF RECORD.**--June 1937 to current year.

**REVISED RECORDS.**--WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 647.09 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Oct. 1 to Dec. 3, Jan. 13-29, Feb. 6, 7, and May 10-23. Records good except those for periods of no gage-height record, Oct. 1 to Dec. 3 and May 10-23, and periods with ice effect, Jan. 13-29 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--48 years, 94.1 $ft^3/s$, 12.41 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 22,000 $ft^3/s$, Oct. 15, 1942, gage height, 27.0 ft, from floodmarks, from rating curve extended above 15,000 $ft^3/s$; minimum, 1.8 $ft^3/s$, Feb. 19, 1941, Dec. 7, 1958, result of freezeups; minimum daily, 2.8 $ft^3/s$, Sept. 7, 1964, Sept. 3, 4, 7, 8, 1966; minimum gage height, 1.04 ft, Feb. 19, 1941.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Mar. 17, 1936, reached a stage of about 25 ft, discharge, about 18,000 $ft^3/s$, from information by local residents.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | Unknown | *4,240 | *a10.35 | Feb. 12 | 1230 | 4,010 | 9.96 |

a From high-water mark.

Minimum discharge, 4.2 $ft^3/s$, Aug. 16, Sept. 7, gage height, 1.41 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14 | 18 | 200 | 49 | 69 | 130 | 160 | 32 | 146 | 11 | 12 | 7.1 |
| 2 | 13 | 17 | 120 | 58 | 121 | 120 | 140 | 32 | 78 | 18 | 11 | 6.9 |
| 3 | 12 | 23 | 95 | 75 | 104 | 105 | 130 | 73 | 59 | 21 | 10 | 6.7 |
| 4 | 12 | 23 | 82 | 89 | 80 | 97 | 116 | 63 | 50 | 13 | 8.7 | 6.5 |
| 5 | 11 | 28 | 73 | 132 | 75 | 92 | 105 | 48 | 64 | 11 | 7.7 | 5.9 |
| 6 | 11 | 22 | 82 | 121 | 70 | 90 | 97 | 42 | 78 | 17 | 7.8 | 5.3 |
| 7 | 11 | 19 | 70 | 112 | 64 | 73 | 86 | 40 | 56 | 12 | 7.6 | 5.0 |
| 8 | 12 | 18 | 70 | 104 | 61 | 72 | 80 | 36 | 75 | 11 | 15 | 8.1 |
| 9 | 12 | 17 | 66 | 90 | 57 | 69 | 75 | 33 | 61 | 17 | 13 | 11 |
| 10 | 12 | 16 | 62 | 87 | 70 | 64 | 69 | 28 | 50 | 22 | 8.6 | 8.2 |
| 11 | 12 | 18 | 66 | 80 | 72 | 60 | 66 | 28 | 42 | 21 | 7.3 | 7.1 |
| 12 | 12 | 30 | 69 | 73 | 1820 | 64 | 61 | 40 | 40 | 15 | 7.1 | 5.8 |
| 13 | 12 | 21 | 69 | 70 | 609 | 61 | 57 | 64 | 36 | 17 | 6.8 | 5.8 |
| 14 | 12 | 15 | 63 | 62 | 268 | 61 | 60 | 54 | 32 | 17 | 5.8 | 5.3 |
| 15 | 12 | 15 | 62 | 52 | 186 | 57 | 56 | 45 | 29 | 31 | 5.2 | 5.8 |
| 16 | 13 | 14 | 58 | 52 | 134 | 54 | 59 | 40 | 29 | 19 | 4.8 | 6.1 |
| 17 | 13 | 13 | 56 | 54 | 118 | 53 | 61 | 52 | 28 | 11 | 10 | 6.3 |
| 18 | 15 | 17 | 54 | 54 | 109 | 51 | 52 | 66 | 23 | 9.3 | 16 | 6.3 |
| 19 | 19 | 29 | 56 | 54 | 111 | 49 | 50 | 52 | 21 | 8.7 | 32 | 5.9 |
| 20 | 22 | 25 | 56 | 54 | 126 | 48 | 48 | 45 | 19 | 8.3 | 15 | 6.0 |
| 21 | 13 | 22 | 56 | 40 | 118 | 48 | 48 | 35 | 17 | 8.5 | 13 | 5.9 |
| 22 | 24 | 20 | 72 | 34 | 153 | 46 | 45 | 32 | 16 | 9.1 | 11 | 6.1 |
| 23 | 40 | 19 | 63 | 33 | 224 | 96 | 44 | 130 | 15 | 8.3 | 9.1 | 6.7 |
| 24 | 35 | 18 | 61 | 34 | 271 | 176 | 43 | 133 | 17 | 6.8 | 9.1 | 7.7 |
| 25 | 27 | 17 | 61 | 40 | 238 | 193 | 43 | 78 | 13 | 7.4 | 16 | 6.8 |
| 26 | 23 | 16 | 56 | 45 | 213 | 140 | 42 | 56 | 10 | 27 | 18 | 5.9 |
| 27 | 16 | 17 | 53 | 47 | 183 | 122 | 40 | 45 | 9.0 | 37 | 16 | 14 |
| 28 | 21 | 1600 | 53 | 49 | 148 | 113 | 39 | 40 | 9.3 | 24 | 12 | 17 |
| 29 | 35 | 1400 | 52 | 49 | --- | 109 | 38 | 47 | 9.2 | 14 | 9.1 | 9.9 |
| 30 | 23 | 400 | 53 | 50 | --- | 114 | 34 | 38 | 9.0 | 12 | 8.2 | 7.7 |
| 31 | 20 | --- | 50 | 56 | --- | 107 | --- | 149 | --- | 11 | 8.0 | --- |
| TOTAL | 539 | 3927 | 2159 | 1999 | 5872 | 2734 | 2044 | 1696 | 1140.5 | 475.4 | 340.9 | 218.8 |
| MEAN | 17.4 | 131 | 69.6 | 64.5 | 210 | 88.2 | 68.1 | 54.7 | 38.0 | 15.3 | 11.0 | 7.29 |
| MAX | 40 | 1600 | 200 | 132 | 1820 | 193 | 160 | 149 | 146 | 37 | 32 | 17 |
| MIN | 11 | 13 | 50 | 33 | 57 | 46 | 34 | 28 | 9.0 | 6.8 | 4.8 | 5.0 |
| CFSM | .17 | 1.27 | .68 | .63 | 2.04 | .86 | .66 | .53 | .37 | .15 | .11 | .07 |
| IN. | .19 | 1.42 | .78 | .72 | 2.12 | .99 | .74 | .61 | .41 | .17 | .12 | .08 |

CAL YR 1984 TOTAL 56826 MEAN 155 MAX 3770 MIN 10 CFSM 1.50 IN. 20.52
WTR YR 1985 TOTAL 23145.6 MEAN 63.4 MAX 1820 MIN 4.8 CFSM .62 IN. 8.36

## 01635500 PASSAGE CREEK NEAR BUCKTON, VA

**LOCATION.**--Lat 38°57'29", long 78°16'01", Warren County, Hydrologic Unit 02070006, on right bank 350 ft upstream from bridge on State Highway 55, 1.2 mi south of Buckton railroad station, 1.4 mi upstream from mouth, and 4.2 mi west of Riverton.

**DRAINAGE AREA.**--87.8 mi$^2$.

**PERIOD OF RECORD.**--October 1905 to July 1906 (gage heights only), April 1932 to current year. Prior to October 1966, published as "at Buckton."

**REVISED RECORDS.**--WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder and concrete control. Datum of gage is 525.14 ft above National Geodetic Vertical Datum of 1929. October 1905 to July 1906, nonrecording gage at site 1 mi downstream at different datum. Apr. 4, 1932, to Oct. 7, 1937, nonrecording gage at site 350 ft downstream at different datum.

**REMARKS.**--Estimated daily discharges: Dec. 8, Jan. 12-17, 20-31, and Feb. 1, 2, 3-12, 15-19. Records good except those for periods of no gage-height record, Dec. 8, Jan. 12-17, 20-31, and Feb. 3-12, 15-19, and period with ice effect, Feb. 1, 2, which are fair. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--53 years, 69.0 ft$^3$/s, 10.67 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 21,000 ft$^3$/s, Oct. 15, 1942, gage height, 15.5 ft, from high-water mark in well, from rating curve extended above 5,200 ft$^3$/s; minimum observed, 0.1 ft$^3$/s, Aug. 5, 1932.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0930 | 1,540 | 6.88 | Feb. 12 | Unknown | *2,280 | *a7.95 |

a From high-water mark.

Minimum discharge, 1.5 ft$^3$/s, Aug. 15 16, gage height, 2.81 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 34 | 18 | 114 | 24 | 140 | 88 | 69 | 15 | 236 | 5.6 | 7.4 | 4.9 |
| 2 | 40 | 14 | 80 | 29 | 250 | 82 | 65 | 15 | 102 | 7.1 | 5.6 | 4.4 |
| 3 | 19 | 13 | 67 | 58 | 70 | 72 | 61 | 28 | 69 | 8.8 | 5.2 | 4.0 |
| 4 | 12 | 12 | 57 | 86 | 56 | 67 | 58 | 37 | 55 | 11 | 5.2 | 3.9 |
| 5 | 9.7 | 22 | 47 | 102 | 47 | 65 | 55 | 23 | 53 | 8.7 | 4.0 | 3.6 |
| 6 | 8.0 | 39 | 57 | 96 | 43 | 57 | 50 | 19 | 55 | 7.3 | 4.0 | 3.4 |
| 7 | 8.0 | 24 | 60 | 84 | 41 | 50 | 47 | 17 | 40 | 6.3 | 3.7 | 3.5 |
| 8 | 8.6 | 18 | 46 | 78 | 41 | 49 | 44 | 15 | 42 | 5.5 | 4.6 | 3.7 |
| 9 | 7.6 | 16 | 47 | 65 | 40 | 47 | 42 | 14 | 43 | 5.9 | 5.0 | 4.5 |
| 10 | 7.3 | 15 | 43 | 57 | 50 | 43 | 39 | 13 | 32 | 8.1 | 4.0 | 3.1 |
| 11 | 8.6 | 14 | 44 | 53 | 160 | 42 | 37 | 13 | 25 | 10 | 3.8 | 2.4 |
| 12 | 6.0 | 13 | 46 | 50 | 1600 | 47 | 35 | 13 | 26 | 8.9 | 3.0 | 2.3 |
| 13 | 6.7 | 12 | 44 | 47 | 540 | 43 | 34 | 19 | 23 | 8.9 | 2.3 | 2.4 |
| 14 | 6.7 | 11 | 40 | 46 | 236 | 40 | 33 | 21 | 19 | 13 | 2.1 | 2.3 |
| 15 | 6.5 | 11 | 35 | 45 | 150 | 35 | 32 | 15 | 17 | 11 | 1.7 | 2.2 |
| 16 | 8.3 | 10 | 33 | 44 | 110 | 34 | 33 | 14 | 17 | 8.9 | 2.1 | 2.4 |
| 17 | 5.8 | 10 | 32 | 43 | 92 | 32 | 32 | 38 | 16 | 7.5 | 1.8 | 4.5 |
| 18 | 8.3 | 10 | 31 | 40 | 88 | 31 | 29 | 72 | 14 | 6.0 | 3.8 | 2.5 |
| 19 | 8.6 | 15 | 29 | 35 | 84 | 29 | 26 | 44 | 14 | 4.8 | 6.8 | 2.1 |
| 20 | 9.4 | 31 | 29 | 33 | 82 | 29 | 25 | 32 | 12 | 4.1 | 9.9 | 2.1 |
| 21 | 6.7 | 23 | 29 | 27 | 76 | 27 | 23 | 24 | 10 | 3.6 | 9.9 | 2.1 |
| 22 | 6.9 | 18 | 35 | 22 | 74 | 28 | 23 | 21 | 9.1 | 3.7 | 13 | 2.0 |
| 23 | 8.8 | 16 | 32 | 20 | 90 | 47 | 23 | 24 | 9.4 | 3.3 | 8.8 | 1.9 |
| 24 | 17 | 15 | 29 | 20 | 102 | 94 | 22 | 44 | 9.4 | 3.0 | 6.4 | 1.9 |
| 25 | 16 | 14 | 29 | 23 | 102 | 90 | 22 | 38 | 8.6 | 3.2 | 6.6 | 2.0 |
| 26 | 12 | 14 | 27 | 28 | 114 | 74 | 23 | 29 | 8.3 | 4.8 | 10 | 2.0 |
| 27 | 9.4 | 13 | 24 | 33 | 116 | 65 | 21 | 24 | 6.5 | 12 | 16 | 4.7 |
| 28 | 12 | 97 | 24 | 35 | 98 | 63 | 22 | 23 | 5.8 | 11 | 13 | 3.3 |
| 29 | 44 | 926 | 24 | 35 | --- | 63 | 22 | 21 | 5.4 | 7.9 | 8.4 | 3.2 |
| 30 | 37 | 186 | 23 | 37 | --- | 65 | 20 | 21 | 5.4 | 5.9 | 6.5 | 2.6 |
| 31 | 21 | --- | 23 | 40 | --- | 63 | --- | 247 | --- | 5.8 | 5.5 | --- |
| TOTAL | 419.9 | 1650 | 1280 | 1435 | 4692 | 1661 | 1067 | 993 | 987.9 | 221.6 | 190.1 | 89.9 |
| MEAN | 13.5 | 55.0 | 41.3 | 46.3 | 168 | 53.6 | 35.6 | 32.0 | 32.9 | 7.15 | 6.13 | 3.00 |
| MAX | 44 | 926 | 114 | 102 | 1600 | 94 | 69 | 247 | 236 | 13 | 16 | 4.9 |
| MIN | 5.8 | 10 | 23 | 20 | 40 | 27 | 20 | 13 | 5.4 | 3.0 | 1.7 | 1.9 |
| CFSM | .15 | .63 | .47 | .53 | 1.91 | .61 | .41 | .36 | .37 | .08 | .07 | .03 |
| IN. | .18 | .70 | .54 | .61 | 1.99 | .70 | .45 | .42 | .42 | .09 | .08 | .04 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 40252.5 | MEAN | 110 | MAX | 2220 | MIN | 2.1 | CFSM | 1.25 | IN. | 17.05 |
| WTR YR 1985 | TOTAL | 14687.4 | MEAN | 40.2 | MAX | 1600 | MIN | 1.7 | CFSM | .46 | IN. | 6.22 |

## 01636500 SHENANDOAH RIVER AT MILLVILLE, WV
(National stream-quality accounting network station)

**LOCATION.**--Lat 39°16'55", long 77°47'22", Jefferson County, Hydrologic Unit 02070007, on left bank 0.4 mi downstream from Cattail Run, 1.0 mi upstream from Millville, 5.0 mi upstream from Harpers Ferry, and at mile 5.0.

**DRAINAGE AREA.**--3,040 mi$^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--April 1895 to March 1909, August 1928 to current year.

**REVISED RECORDS.**--WSP 951: 1936(M). WSP 1432: Drainage area at former site, 1895-99, 1901-2, 1905, 1907-8, 1932(M), 1935(M).

**GAGE.**--Water-stage recorder. Datum of gage is 293.00 ft above National Geodetic Vertical Datum of 1929. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi downstream at datum 0.32 ft higher.

**REMARKS.**--Estimated daily discharges: Jan. 18-22, 25-31 and Feb. 1, 8-11. Records good except those for periods with ice effect, Jan. 18-22, 25-31 and Feb. 1, 8-11, which are poor. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Company, 0.5 mi upstream from station. U.S. Army Corps of Engineers satellite telemeter and National Weather Service gage-height telemeter at station.

**AVERAGE DISCHARGE.**--70 years (water years 1896-1908, 1929-85), 2,698 ft$^3$/s, 12.05 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 230,000 ft$^3$/s, Oct. 16, 1942, gage height, 32.4 ft, from floodmarks; minimum, about 59 ft$^3$/s, Oct. 4, 1930, gage height, 0.39 ft; minimum daily, 194 ft$^3$/s, July 24, 1930.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft, discharge, 151,000 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 15,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 3 | 1930 | 15,500 | 8.55 | Feb. 13 | 1545 | *24,700 | *10.83 |

Minimum discharge, 346 ft$^3$/s, Sept. 25, gage height, 1.15 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1010 | 1060 | 7580 | 1550 | 1170 | 4970 | 2770 | 1060 | 2950 | 689 | 732 | 1090 |
| 2 | 1140 | 1260 | 5140 | 1580 | 1990 | 4380 | 2610 | 1100 | 5500 | 527 | 718 | 976 |
| 3 | 1250 | 953 | 3970 | 1690 | 6270 | 3870 | 2510 | 1170 | 3250 | 629 | 617 | 804 |
| 4 | 1300 | 964 | 3180 | 2020 | 6700 | 3400 | 2390 | 1210 | 2400 | 702 | 617 | 832 |
| 5 | 1360 | 1010 | 2700 | 2710 | 4540 | 3040 | 2290 | 1260 | 2010 | 795 | 595 | 782 |
| 6 | 1030 | 1010 | 2480 | 4100 | 3370 | 2740 | 2170 | 3360 | 1830 | 702 | 558 | 737 |
| 7 | 927 | 1040 | 2350 | 4220 | 2890 | 2530 | 2080 | 3050 | 1890 | 710 | 666 | 637 |
| 8 | 867 | 926 | 2260 | 3900 | 2540 | 2340 | 1940 | 2490 | 1930 | 728 | 645 | 682 |
| 9 | 810 | 1020 | 2240 | 3660 | 2360 | 2170 | 1890 | 2120 | 1780 | 539 | 590 | 724 |
| 10 | 903 | 989 | 2020 | 3390 | 2260 | 2060 | 1770 | 1830 | 1690 | 638 | 590 | 622 |
| 11 | 742 | 944 | 1920 | 2910 | 2120 | 2030 | 1730 | 1560 | 1610 | 666 | 571 | 573 |
| 12 | 813 | 846 | 1900 | 2680 | 7280 | 1930 | 1670 | 1480 | 1510 | 695 | 545 | 588 |
| 13 | 784 | 930 | 1840 | 2470 | 23900 | 1860 | 1600 | 1350 | 1360 | 695 | 603 | 573 |
| 14 | 773 | 978 | 1810 | 2310 | 15000 | 1840 | 1560 | 1290 | 1680 | 779 | 691 | 500 |
| 15 | 793 | 847 | 1810 | 2160 | 7290 | 1840 | 1530 | 1440 | 1540 | 1770 | 606 | 495 |
| 16 | 721 | 850 | 1760 | 1960 | 5230 | 1700 | 1480 | 1370 | 1390 | 1440 | 581 | 552 |
| 17 | 788 | 751 | 1660 | 1860 | 4200 | 1640 | 1470 | 1400 | 1110 | 1060 | 555 | 566 |
| 18 | 746 | 772 | 1620 | 1700 | 3620 | 1590 | 1450 | 1440 | 1060 | 834 | 499 | 508 |
| 19 | 755 | 871 | 1620 | 1600 | 3200 | 1540 | 1410 | 1560 | 1110 | 827 | 624 | 456 |
| 20 | 971 | 896 | 1580 | 1500 | 2940 | 1520 | 1370 | 1660 | 897 | 779 | 714 | 482 |
| 21 | 621 | 977 | 1540 | 1400 | 2780 | 1480 | 1330 | 1560 | 989 | 718 | 4430 | 538 |
| 22 | 828 | 983 | 1510 | 1300 | 2880 | 1470 | 1250 | 1330 | 852 | 652 | 3030 | 506 |
| 23 | 943 | 1050 | 1540 | 1620 | 2990 | 1710 | 1230 | 1350 | 819 | 544 | 2610 | 461 |
| 24 | 936 | 947 | 1590 | 1550 | 3350 | 2300 | 1290 | 1300 | 771 | 497 | 1920 | 443 |
| 25 | 882 | 974 | 1770 | 1560 | 4220 | 3170 | 1220 | 1500 | 755 | 571 | 1700 | 498 |
| 26 | 882 | 965 | 1840 | 1540 | 5250 | 3760 | 1200 | 2010 | 693 | 652 | 1450 | 551 |
| 27 | 999 | 986 | 1790 | 1500 | 5670 | 3590 | 1080 | 3020 | 744 | 679 | 1400 | 568 |
| 28 | 1050 | 1210 | 1740 | 1380 | 5490 | 3250 | 1200 | 2770 | 631 | 666 | 1430 | 615 |
| 29 | 1150 | 4920 | 1600 | 1310 | --- | 3030 | 1250 | 2340 | 638 | 732 | 1490 | 557 |
| 30 | 1160 | 8630 | 1610 | 1270 | --- | 2850 | 1130 | 2000 | 666 | 795 | 1380 | 486 |
| 31 | 1050 | --- | 1610 | 1200 | --- | 2700 | --- | 1810 | --- | 755 | 1180 | --- |
| TOTAL | 28984 | 40559 | 69580 | 65600 | 141500 | 78300 | 49870 | 54190 | 46055 | 23465 | 34337 | 18402 |
| MEAN | 935 | 1352 | 2245 | 2116 | 5054 | 2526 | 1662 | 1748 | 1535 | 757 | 1108 | 613 |
| MAX | 1360 | 8630 | 7580 | 4220 | 23900 | 4970 | 2770 | 3360 | 5500 | 1770 | 4430 | 1090 |
| MIN | 621 | 751 | 1510 | 1200 | 1170 | 1470 | 1080 | 1060 | 631 | 497 | 499 | 443 |
| CFSM | .31 | .45 | .74 | .70 | 1.66 | .83 | .55 | .58 | .51 | .25 | .36 | .20 |
| IN. | .35 | .50 | .85 | .80 | 1.73 | .96 | .61 | .66 | .56 | .29 | .42 | .23 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 1449243 | MEAN | 3960 | MAX | 50400 | MIN | 621 | CFSM | 1.30 | IN. | 17.73 |
| WTR YR 1985 | TOTAL | 650842 | MEAN | 1783 | MAX | 23900 | MIN | 443 | CFSM | .59 | IN. | 7.96 |

## 01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-63, 1965, 1969-71, 1979 to current year.

INSTRUMENTATION.--Water-quality monitor October 1980 to September 1983.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1980 to September 1983.
WATER TEMPERATURE: October 1980 to September 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1981-82): Maximum, 778 microsiemens, Dec. 29, 1980; minimum, 212 microsiemens, Jan. 17,1982.
WATER TEMPERATURE (water years 1981-83): Maximum, 30.0°C, July 20, 21, 1981; minimum, 0.0°C on many days during winter periods.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH (STAND-ARD UNITS) | TEMPER-ATURE, AIR (DEG C) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984<br>07... | 11:00 | 1270 | 510 | 8.1 | 11.0 | 10.0 | 768 | 1.1 | 12.0 | 106 |
| JAN 1985<br>07... | 10:00 | 4280 | 318 | 8.2 | 4.0 | 6.0 | 752 | 2.0 | 15.6 | 127 |
| MAR<br>11... | 10:15 | 2120 | 310 | 8.6 | 15.0 | 11.0 | 761 | 1.5 | 12.7 | 115 |
| MAY<br>01... | 09:30 | 1060 | 410 | 8.5 | 23.0 | 21.5 | 758 | 3.0 | 8.3 | 95 |
| JUL<br>01... | 10:30 | 1830 | 425 | 8.9 | 21.0 | 25.0 | 764 | 2.0 | 7.5 | 91 |
| SEP<br>03... | 10:00 | 1100 | 374 | 8.3 | 26.0 | 25.0 | 762 | 3.4 | 7.2 | 87 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | PERCENT SODIUM | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984<br>07... | -- | K21 | 190 | 30 | 51 | 15 | 31 | 26 | 1 | 3.0 |
| JAN 1985<br>07... | 48 | 180 | 140 | 17 | 38 | 10 | 11 | 15 | 0.4 | 1.9 |
| MAR<br>11... | K3 | 140 | 120 | 26 | 35 | 8.8 | 15 | 21 | 0.6 | 1.4 |
| MAY<br>01... | 30 | 120 | 150 | 28 | 42 | 12 | 24 | 25 | 0.9 | 2.2 |
| JUL<br>01... | <1 | K65 | 160 | 47 | 43 | 12 | 29 | 28 | 1 | 2.1 |
| SEP<br>03... | 31 | 82 | 140 | 33 | 38 | 11 | 25 | 27 | 1 | 2.7 |

| DATE | ALKA-LINITY FIELD (MG/L AS CACO3) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | SOLIDS, DIS-SOLVED (TONS PER DAY) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984<br>07... | 159 | 2.4 | 67 | 18 | 0.1 | 4.7 | 296 | 290 | 0.4 | 1010 |
| JAN 1985<br>07... | 119 | 1.3 | 28 | 10 | <0.1 | 3.6 | 193 | 170 | 0.26 | 2230 |
| MAR<br>11... | 98 | 0.5 | 42 | 9.8 | <0.1 | 1.3 | 178 | 170 | 0.24 | 1020 |
| MAY<br>01... | 126 | 0.8 | 57 | 13 | 0.1 | 3.8 | 251 | 230 | 0.34 | 718 |
| JUL<br>01... | 110 | 0.3 | 72 | 19 | 0.1 | 1.7 | 272 | 250 | 0.37 | 1340 |
| SEP<br>03... | 107 | 1.0 | 55 | 12 | 0.1 | 6.1 | 211 | 210 | 0.29 | 627 |

## 01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS TOTAL (MG/L AS PO4) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) | PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4) |
|---|---|---|---|---|---|---|---|---|---|
| NOV 1984 | | | | | | | | | |
| 07... | 1.40 | <0.01 | -- | 0.5 | 0.28 | 0.86 | 0.16 | 0.15 | 0.46 |
| JAN 1985 | | | | | | | | | |
| 07... | 1.40 | 0.02 | 0.03 | 0.5 | 0.14 | 0.43 | 0.11 | 0.08 | 0.25 |
| MAR | | | | | | | | | |
| 11... | 0.98 | 0.04 | 0.05 | 1.1 | 0.08 | 0.25 | 0.08 | 0.06 | 0.18 |
| MAY | | | | | | | | | |
| 01... | <0.10 | <0.01 | -- | 0.5 | 0.15 | 0.46 | 0.08 | <0.01 | -- |
| JUL | | | | | | | | | |
| 01... | 0.14 | 0.02 | 0.03 | 0.7 | 0.12 | 0.37 | 0.08 | 0.07 | 0.21 |
| SEP | | | | | | | | | |
| 03... | 0.86 | 0.05 | 0.06 | 0.5 | 0.12 | 0.37 | 0.12 | 0.11 | 0.34 |

| DATE | ALUMINUM, DISSOLVED (UG/L AS AL) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | BERYLLIUM, DISSOLVED (UG/L AS BE) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) | LEAD, DISSOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984 | | | | | | | | | | |
| 07... | <10 | 1 | 43 | <0.5 | <1 | <1 | <3 | 1 | 9 | 1 |
| MAR | | | | | | | | | | |
| 11... | 20 | <1 | 33 | <0.5 | <1 | <1 | <3 | <1 | 27 | 3 |
| MAY | | | | | | | | | | |
| 01... | 20 | 1 | 37 | 0.6 | <1 | <1 | <3 | 3 | 11 | 1 |
| SEP | | | | | | | | | | |
| 03... | <10 | 1 | 39 | <0.5 | <1 | <1 | <3 | 1 | 6 | 1 |

| DATE | LITHIUM DISSOLVED (UG/L AS LI) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | MOLYBDENUM, DISSOLVED (UG/L AS MO) | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | STRONTIUM, DISSOLVED (UG/L AS SR) | VANADIUM, DISSOLVED (UG/L AS V) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984 | | | | | | | | | | |
| 07... | 10 | 4 | <0.1 | <10 | 1 | <1 | <1 | 180 | <6 | 9 |
| MAR | | | | | | | | | | |
| 11... | 5 | 6 | <0.1 | <10 | 1 | <1 | <1 | 110 | <6 | 8 |
| MAY | | | | | | | | | | |
| 01... | <4 | 4 | <0.1 | <10 | 1 | <1 | <1 | 140 | <6 | 5 |
| SEP | | | | | | | | | | |
| 03... | 8 | 12 | <0.1 | <10 | 1 | <1 | <1 | 130 | <6 | 23 |

| DATE | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|
| NOV | | | |
| 07... | 8 | 27 | 29 |
| JAN | | | |
| 07... | 14 | 162 | 62 |
| MAR | | | |
| 11... | 6 | 34 | 97 |
| MAY | | | |
| 01... | 22 | 63 | 78 |
| JUL | | | |
| 01... | 29 | 143 | 71 |
| SEP | | | |
| 03... | 15 | 45 | 99 |

## 01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

**LOCATION.**--Lat 39°15'18", long 77°34'36", Loudoun County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on State Highway 663 at Taylorstown and 3.2 mi downstream from Milltown Creek.

**DRAINAGE AREA.**--89.6 $mi^2$.

**PERIOD OF RECORD.**--August 1971 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 247.37 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 3, 1983, at site 60 ft upstream at datum 1.78 ft higher.

**REMARKS.**--Estimated daily discharges: Dec. 3, 4, Jan. 9-24, Feb. 4-10, 14-26, May 14-22, and July 5-10, 14, 15, 17-25. Records good except those for periods of doubtful gage-height record, Dec. 3, 4, Feb. 14-26, May 14-22, and July 5-10, 14, 15, 17-25, and periods with ice effect, Jan. 9-24 and Feb. 4-10, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--14 years, 107 $ft^3/s$, 16.22 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 23,800 $ft^3/s$, June 22, 1972, gage height, 23.83 ft, from floodmarks, site and datum then in use, from rating curve extended above 7,400 $ft^3/s$ on basis of contracted-opening measurement of peak flow; minimum, 1.0 $ft^3/s$, Sept. 26, 1985.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,200 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1230 | *5,440 | *13.08 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 1.0 $ft^3/s$, Sept. 26.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 55 | 25 | 112 | 44 | 67 | 61 | 144 | 16 | 62 | 13 | 14 | 4.8 |
| 2 | 42 | 23 | 91 | 67 | 570 | 58 | 105 | 17 | 37 | 16 | 13 | 3.6 |
| 3 | 26 | 22 | 78 | 90 | 170 | 54 | 91 | 46 | 30 | 26 | 10 | 4.2 |
| 4 | 18 | 20 | 69 | 100 | 80 | 51 | 84 | 41 | 26 | 27 | 7.7 | 6.5 |
| 5 | 14 | 31 | 63 | 107 | 67 | 51 | 78 | 24 | 88 | 18 | 7.1 | 5.4 |
| 6 | 11 | 38 | 161 | 104 | 56 | 46 | 69 | 19 | 79 | 13 | 5.9 | 5.4 |
| 7 | 12 | 28 | 125 | 91 | 55 | 41 | 61 | 17 | 44 | 10 | 5.9 | 4.8 |
| 8 | 14 | 23 | 87 | 86 | 56 | 43 | 58 | 15 | 44 | 7.3 | 11 | 4.2 |
| 9 | 16 | 21 | 79 | 66 | 57 | 43 | 57 | 13 | 43 | 5.7 | 16 | 4.8 |
| 10 | 16 | 21 | 74 | 63 | 58 | 39 | 52 | 12 | 33 | 5.2 | 13 | 5.4 |
| 11 | 16 | 21 | 71 | 61 | 63 | 38 | 50 | 9.5 | 27 | 18 | 9.4 | 5.9 |
| 12 | 17 | 26 | 65 | 57 | 3160 | 43 | 48 | 49 | 25 | 144 | 7.7 | 6.5 |
| 13 | 15 | 20 | 61 | 53 | 478 | 39 | 46 | 214 | 23 | 152 | 5.9 | 4.8 |
| 14 | 14 | 17 | 59 | 50 | 170 | 36 | 44 | 50 | 20 | 25 | 4.2 | 3.9 |
| 15 | 14 | 16 | 54 | 49 | 115 | 34 | 43 | 25 | 19 | 14 | 2.9 | 3.6 |
| 16 | 17 | 17 | 53 | 48 | 88 | 31 | 43 | 20 | 19 | 57 | 2.9 | 3.6 |
| 17 | 19 | 17 | 50 | 50 | 78 | 31 | 41 | 45 | 20 | 30 | 2.3 | 3.2 |
| 18 | 19 | 17 | 49 | 49 | 72 | 30 | 37 | 90 | 18 | 16 | 4.2 | 3.2 |
| 19 | 18 | 25 | 49 | 49 | 69 | 27 | 34 | 38 | 15 | 12 | 14 | 3.2 |
| 20 | 17 | 30 | 53 | 48 | 68 | 27 | 32 | 27 | 14 | 9.0 | 14 | 3.2 |
| 21 | 17 | 25 | 53 | 45 | 65 | 27 | 30 | 25 | 13 | 7.0 | 7.7 | 2.9 |
| 22 | 19 | 21 | 70 | 43 | 65 | 28 | 27 | 22 | 13 | 5.9 | 6.5 | 2.6 |
| 23 | 42 | 20 | 59 | 42 | 75 | 54 | 26 | 52 | 13 | 5.4 | 5.4 | 2.6 |
| 24 | 39 | 19 | 53 | 44 | 85 | 144 | 25 | 76 | 16 | 4.9 | 4.2 | 2.6 |
| 25 | 33 | 19 | 51 | 45 | 82 | 149 | 26 | 43 | 13 | 4.0 | 4.8 | 2.3 |
| 26 | 25 | 19 | 47 | 43 | 80 | 86 | 26 | 33 | 8.4 | 19 | 14 | 1.3 |
| 27 | 22 | 19 | 45 | 41 | 73 | 73 | 23 | 27 | 8.4 | 38 | 26 | 8.8 |
| 28 | 21 | 125 | 45 | 39 | 65 | 66 | 20 | 40 | 12 | 38 | 21 | 24 |
| 29 | 74 | 604 | 45 | 38 | --- | 78 | 20 | 62 | 14 | 27 | 14 | 8.3 |
| 30 | 43 | 165 | 45 | 37 | --- | 91 | 17 | 36 | 13 | 20 | 9.4 | 4.8 |
| 31 | 30 | --- | 44 | 38 | --- | 116 | --- | 48 | --- | 17 | 7.1 | --- |
| TOTAL | 755 | 1494 | 2060 | 1787 | 6187 | 1735 | 1457 | 1251.5 | 809.8 | 804.4 | 291.2 | 150.4 |
| MEAN | 24.4 | 49.8 | 66.5 | 57.6 | 221 | 56.0 | 48.6 | 40.4 | 27.0 | 25.9 | 9.39 | 5.01 |
| MAX | 74 | 604 | 161 | 107 | 3160 | 149 | 144 | 214 | 88 | 152 | 26 | 24 |
| MIN | 11 | 16 | 44 | 37 | 55 | 27 | 17 | 9.5 | 8.4 | 4.0 | 2.3 | 1.3 |
| CFSM | .27 | .56 | .74 | .64 | 2.47 | .62 | .54 | .45 | .30 | .29 | .10 | .06 |
| IN. | .31 | .62 | .86 | .74 | 2.57 | .72 | .60 | .52 | .34 | .33 | .12 | .06 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 53441 | MEAN | 146 | MAX | 3500 | MIN | 11 | CFSM | 1.63 | IN. | 22.19 |
| WTR YR 1985 | TOTAL | 18782.3 | MEAN | 51.5 | MAX | 3160 | MIN | 1.3 | CFSM | .57 | IN. | 7.80 |

## 01636500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi downstream from Catoctin Creek (Virginia), 6 mi upstream from Monocacy River, and at mile 159.5.
DRAINAGE AREA.--9,651 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1895 to current year.
REVISED RECORDS.--WSP 192: 1895-1905. WSP 1432: 1899, 1901-2, 1904-5, 1912, 1914(M), 1915, 1917(M), 1918, 1919(M), 1920, 1921-23(M), 1924, 1925-28(M), 1930(M).
GAGE.--Water-stage recorder. Datum of gage is 200.63 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft higher.
REMARKS.--Estimated daily discharges: Nov. 5-9 and Jan. 15 to Feb. 13. Records good. Low flow affected slightly from 1913 to July 1981 by Stony River Reservoir, since December 1950 by Savage River Reservoir, and since July 1981, by Jennings Randolph Lake. Low flow affected extensively at times by run-of-the-river hydroelectric plants. National Weather Service gage-height telemeter at station.
AVERAGE DISCHARGE.--90 years, 9,400 ft$^3$/s, 13.22 in/yr.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft$^3$/s, Mar. 19, 1936, gage height, 41.03 ft, from rating curve extended above 300,000 ft$^3$/s on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum discharge, 530 ft$^3$/s, Sept. 11, 12, 1966, gage height, 0.27 ft.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 40.2 ft, from floodmarks, discharge, about 460,000 ft$^3$/s from rating curve extended as explained above.
EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 35,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 30 | 1400 | 36,800 | 8.70 | Jun. 2 | 1030 | 35,000 | 8.39 |
| Feb. 13 | 2000 | *84,700 | *15.57 | | | | |

Minimum discharge, 1,300 ft$^3$/s, Sept. 18, 19, gage height, 0.74 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3070 | 3320 | 28100 | 7870 | 4700 | 22900 | 21500 | 4020 | 6460 | 2000 | 2890 | 2760 |
| 2 | 2990 | 3870 | 19700 | 7600 | 8000 | 19000 | 27500 | 4110 | 27200 | 2130 | 2710 | 2530 |
| 3 | 3010 | 3670 | 14500 | 7330 | 8400 | 15800 | 25300 | 4970 | 20100 | 1930 | 2520 | 2220 |
| 4 | 3310 | 3150 | 11600 | 7410 | 9600 | 13300 | 20200 | 19000 | 12600 | 2100 | 2400 | 2260 |
| 5 | 3640 | 3300 | 9990 | 8130 | 10000 | 11800 | 16400 | 27100 | 10400 | 2300 | 2370 | 2110 |
| 6 | 3370 | 3500 | 9210 | 9860 | 8000 | 10700 | 14000 | 20900 | 9440 | 2290 | 2380 | 1980 |
| 7 | 3010 | 3600 | 8560 | 11100 | 7000 | 9960 | 12300 | 15300 | 9870 | 2410 | 2190 | 1780 |
| 8 | 2840 | 3400 | 8290 | 11300 | 6000 | 9420 | 11100 | 12000 | 11400 | 2560 | 2350 | 1740 |
| 9 | 2710 | 3380 | 7770 | 10500 | 4500 | 8540 | 10100 | 10200 | 9160 | 2460 | 2670 | 1830 |
| 10 | 2570 | 3360 | 7170 | 9810 | 5300 | 8030 | 9360 | 8730 | 8910 | 2340 | 2310 | 1920 |
| 11 | 3310 | 3260 | 6790 | 8760 | 5800 | 7740 | 8630 | 7520 | 8770 | 2240 | 2190 | 1800 |
| 12 | 3240 | 3030 | 6770 | 7880 | 21000 | 7860 | 7980 | 6780 | 7420 | 6080 | 2100 | 1740 |
| 13 | 2800 | 3030 | 6940 | 7290 | 56000 | 7600 | 7560 | 6540 | 6550 | 9550 | 2010 | 1700 |
| 14 | 2260 | 3160 | 7110 | 6640 | 57000 | 8400 | 7310 | 6060 | 6400 | 6580 | 2070 | 1540 |
| 15 | 2410 | 3170 | 7330 | 6000 | 30500 | 10100 | 7300 | 5960 | 5700 | 6330 | 1920 | 1490 |
| 16 | 2310 | 3070 | 7050 | 5600 | 21300 | 8840 | 7130 | 5650 | 5170 | 7520 | 2450 | 1510 |
| 17 | 2190 | 3400 | 6870 | 5300 | 15800 | 8050 | 6810 | 5540 | 4730 | 5530 | 2620 | 1570 |
| 18 | 2360 | 2910 | 6620 | 5100 | 12700 | 7430 | 6520 | 5900 | 4490 | 4580 | 2240 | 1450 |
| 19 | 2320 | 2920 | 6400 | 4900 | 11300 | 6940 | 6410 | 6640 | 4350 | 3700 | 2140 | 1350 |
| 20 | 2440 | 2960 | 6280 | 4500 | 10600 | 6700 | 6310 | 6650 | 4020 | 3280 | 2150 | 1410 |
| 21 | 2510 | 3100 | 6590 | 2300 | 10700 | 6210 | 5880 | 6010 | 3790 | 2980 | 4900 | 1470 |
| 22 | 2350 | 3200 | 8010 | 2600 | 11600 | 5770 | 5520 | 5470 | 3560 | 2730 | 4880 | 1450 |
| 23 | 3060 | 3470 | 11900 | 2800 | 12300 | 5800 | 5290 | 5290 | 3400 | 2530 | 4180 | 1430 |
| 24 | 3150 | 3700 | 13800 | 3300 | 17700 | 7350 | 5190 | 5080 | 3230 | 2210 | 3680 | 1380 |
| 25 | 3190 | 3550 | 12500 | 3900 | 26800 | 15700 | 5020 | 5520 | 3050 | 2250 | 3350 | 1380 |
| 26 | 3100 | 3420 | 11200 | 3800 | 28600 | 19600 | 4890 | 10900 | 2880 | 2660 | 3230 | 1400 |
| 27 | 3080 | 3290 | 10800 | 4500 | 29200 | 18300 | 4670 | 11000 | 2670 | 3450 | 4400 | 1630 |
| 28 | 3230 | 3590 | 10500 | 4500 | 26700 | 15500 | 4640 | 9420 | 2250 | 2970 | 4360 | 1860 |
| 29 | 3580 | 12500 | 9670 | 4300 | --- | 13600 | 4540 | 7860 | 2390 | 3100 | 3850 | 1820 |
| 30 | 3450 | 33800 | 9020 | 4100 | --- | 14100 | 4180 | 6960 | 2240 | 3080 | 3340 | 1670 |
| 31 | 3510 | --- | 8360 | 4100 | --- | 18000 | --- | 6680 | --- | 3020 | 3060 | --- |
| TOTAL | 90370 | 139080 | 305400 | 193080 | 477100 | 349040 | 289540 | 269760 | 212600 | 108890 | 89910 | 52180 |
| MEAN | 2915 | 4636 | 9852 | 6228 | 17040 | 11260 | 9651 | 8702 | 7087 | 3513 | 2900 | 1739 |
| MAX | 3640 | 33800 | 28100 | 11300 | 57000 | 22900 | 27500 | 27100 | 27200 | 9550 | 4900 | 2760 |
| MIN | 2190 | 2910 | 6280 | 2300 | 4500 | 5770 | 4180 | 4020 | 2240 | 1930 | 1920 | 1350 |
| CFSM | .30 | .48 | 1.02 | .65 | 1.77 | 1.17 | 1.00 | .90 | .73 | .36 | .30 | .18 |
| IN. | .35 | .54 | 1.18 | .74 | 1.84 | 1.35 | 1.12 | 1.04 | .82 | .42 | .35 | .20 |

CAL YR 1984 TOTAL 5008820 MEAN 13690 MAX 174000 MIN 2190 CFSM 1.42 IN. 19.31
WTR YR 1985 TOTAL 2576950 MEAN 7060 MAX 57000 MIN 1350 CFSM .73 IN. 9.93

## 01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1960 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

REMARKS.--Water temperatures are measured daily in field by local observer at time of sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum daily, 33.5°C, Aug. 24, 1964, July 19, 1977; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 2,350 mg/L, Apr. 3, 1970; minimum daily mean, 1 mg/L on many days most years.
SEDIMENT LOAD: Maximum daily, 689,000 tons, June 23, 1972; minimum daily, 2.0 tons on many days during 1964, 1966-69.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum daily, 31.0°C, Aug. 15; minimum daily, 0.0°C, Jan. 14, 17, 18.
SEDIMENT CONCENTRATION: Maximum daily mean, 480 mg/L, Feb. 14; minimum daily mean, 1 mg/L, Jan. 11-20, 29-31, Feb. 1, 10, 11, Apr. 20 to May. 2, May 17-24, 30, 31.
SEDIMENT LOAD: Maximum daily, 76,800 tons, Feb. 14; minimum daily, 7.3 tons, Sept. 19.

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15.0 | 17.0 | 7.0 | 7.0 | --- | 6.0 | 12.0 | 19.0 | 22.0 | 23.0 | 27.0 | 24.0 |
| 2 | 14.0 | 16.0 | 7.0 | 9.0 | --- | 6.0 | 10.0 | 19.0 | 22.0 | 24.0 | 25.0 | 22.0 |
| 3 | 13.0 | 12.0 | 7.0 | 7.0 | --- | 7.0 | 8.0 | 16.0 | 20.0 | 25.0 | 26.0 | 24.0 |
| 4 | 15.0 | 13.0 | 5.0 | 6.0 | --- | 7.0 | 8.0 | 18.0 | 20.0 | 25.0 | 27.0 | 25.0 |
| 5 | 15.0 | 13.0 | 5.0 | 6.0 | --- | 7.0 | 8.0 | 15.0 | 20.0 | 26.0 | 27.0 | 26.0 |
| 6 | 15.0 | 12.0 | 5.0 | 6.0 | --- | 7. | 10.0 | 16.0 | 20.0 | 26.0 | 26.0 | 28.0 |
| 7 | 16.0 | 10.0 | 4.0 | 5.0 | --- | 7.0 | 11.0 | 15.0 | 19.0 | 26.0 | 27.0 | 29.0 |
| 8 | 15.0 | 10.0 | 3.0 | 5.0 | --- | 6.0 | 10.0 | 15.0 | 20.0 | 24.0 | 26.0 | 28.0 |
| 9 | 16.0 | 10.0 | 4.0 | 2.0 | --- | 7.0 | 9.0 | 16.0 | 23.0 | 24.0 | 26.0 | 27.0 |
| 10 | 16.0 | 10.0 | 3.0 | 2.0 | --- | 9.0 | 8.0 | 17.0 | 25.0 | 26.0 | 26.0 | 28.0 |
| 11 | 17.0 | 11.0 | 4.0 | 1.0 | --- | 7.0 | 9.0 | 15.0 | 22.0 | 25.0 | 29.0 | 25.0 |
| 12 | 16.0 | 9.0 | 3.0 | 2.0 | --- | 8.0 | 9.0 | 22.0 | 21.0 | 25.0 | 29.0 | 23.0 |
| 13 | 16.0 | 7.0 | 6.0 | 1.0 | --- | 8.0 | 10.0 | 21.0 | 20.0 | 25.0 | 26.0 | 21.0 |
| 14 | 17.0 | 7.0 | 5.0 | .0 | --- | 8.0 | 14.0 | 21.0 | 19.0 | 27.0 | 30.0 | 20.0 |
| 15 | 15.0 | 6.0 | 6.0 | 1.0 | 1.0 | 7.0 | 13.0 | 20.0 | 19.0 | 25.0 | 31.0 | 20.0 |
| 16 | 17.0 | 9.0 | 6.0 | 1.0 | 1.0 | 7.0 | 14.0 | 19.0 | 21.0 | 25.0 | 29.0 | 22.0 |
| 17 | 16.0 | 6.0 | 8.0 | .0 | 2.0 | 7.0 | 13.0 | 19.0 | 24.0 | 25.0 | 26.0 | 22.0 |
| 18 | 16.0 | 6.0 | 7.0 | .0 | 3.0 | 8.0 | 14.0 | 18.0 | 23.0 | 26.0 | 25.0 | 22.0 |
| 19 | 18.0 | 6.0 | 8.0 | 1.0 | 4.0 | 8.0 | 17.0 | 18.0 | 22.0 | 27.0 | 24.0 | 24.0 |
| 20 | 18.0 | 7.0 | 7.0 | --- | 5.0 | 8.0 | 17.0 | 18.0 | 21.0 | 28.0 | 25.0 | 24.0 |
| 21 | 20.0 | 5.0 | 7.0 | --- | 4.0 | 7.0 | 17.0 | 20.0 | 24.0 | 27.0 | 24.0 | 22.0 |
| 22 | 20.0 | 5.0 | 7.0 | --- | 4.0 | 7.0 | 18.0 | 20.0 | 25.0 | 27.0 | 25.0 | 22.0 |
| 23 | 19.0 | 4.0 | 7.0 | --- | 7.0 | 6.0 | 20.0 | 19.0 | 27.0 | 27.0 | 25.0 | 22.0 |
| 24 | 17.0 | 5.0 | 6.0 | --- | 8.0 | 6.0 | 18.0 | 21.0 | 25.0 | 27.0 | 22.0 | 22.0 |
| 25 | 17.0 | 6.0 | 5.0 | --- | 8.0 | 6.0 | 18.0 | 20.0 | 25.0 | 25.0 | 23.0 | 22.0 |
| 26 | 17.0 | 4.0 | 5.0 | --- | 8.0 | 6.0 | 17.0 | 20.0 | 23.0 | 24.0 | 23.0 | 21.0 |
| 27 | 18.0 | 6.0 | 5.0 | --- | 8.0 | 8.0 | 19.0 | 23.0 | 23.0 | 28.0 | 24.0 | 22.0 |
| 28 | 20.0 | 7.0 | 5.0 | --- | 7.0 | 9.0 | 18.0 | 23.0 | 24.0 | 27.0 | 23.0 | 19.0 |
| 29 | 20.0 | 6.0 | 5.0 | --- | --- | 11.0 | 18.0 | 21.0 | 27.0 | 26.0 | 24.0 | 20.0 |
| 30 | 18.0 | 6.0 | 7.0 | --- | --- | 11.0 | --- | 19.0 | 24.0 | 28.0 | 24.0 | 18.0 |
| 31 | 18.0 | --- | 6.0 | --- | --- | 11.0 | --- | 19.0 | --- | --- | 23.0 | --- |
| MEAN | 17.0 | 8.5 | 5.5 | 3.5 | 5.0 | 7.5 | 13.5 | 19.0 | 22.5 | 26.0 | 25.5 | 23.0 |

WTR YR 1985 MEAN 15.5 MAX 31.0 MIN .0

## 01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

### SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
| 1 | 10 | 83 | 16 | 143 | 203 | 15400 | 13 | 276 | 1 | 13 | 82 | 5070 |
| 2 | 5 | 40 | 21 | 219 | 160 | 8510 | 11 | 226 | 4 | 86 | 49 | 2510 |
| 3 | 5 | 41 | 16 | 159 | 62 | 2430 | 14 | 277 | 12 | 272 | 35 | 1490 |
| 4 | 9 | 80 | 15 | 128 | 36 | 1130 | 14 | 280 | 25 | 648 | 26 | 934 |
| 5 | 14 | 138 | 12 | 107 | 30 | 809 | 14 | 307 | 15 | 405 | 19 | 605 |
| 6 | 13 | 118 | 10 | 94 | 27 | 671 | 12 | 319 | 9 | 194 | 15 | 433 |
| 7 | 12 | 98 | 9 | 87 | 23 | 532 | 10 | 300 | 4 | 76 | 15 | 403 |
| 8 | 11 | 84 | 8 | 73 | 20 | 448 | 7 | 214 | 3 | 49 | 14 | 356 |
| 9 | 11 | 80 | 7 | 64 | 18 | 378 | 4 | 113 | 2 | 24 | 15 | 346 |
| 10 | 15 | 104 | 6 | 54 | 14 | 271 | 2 | 53 | 1 | 14 | 15 | 325 |
| 11 | 14 | 125 | 5 | 44 | 11 | 202 | 1 | 24 | 1 | 16 | 16 | 334 |
| 12 | 11 | 96 | 4 | 33 | 11 | 201 | 1 | 21 | 26 | 1470 | 15 | 318 |
| 13 | 10 | 76 | 3 | 25 | 11 | 206 | 1 | 20 | 355 | 65500 | 12 | 246 |
| 14 | 10 | 61 | 2 | 17 | 11 | 211 | 1 | 18 | 480 | 76800 | 26 | 590 |
| 15 | 6 | 39 | 2 | 17 | 11 | 218 | 1 | 16 | 245 | 20200 | 20 | 545 |
| 16 | 5 | 31 | 2 | 17 | 11 | 209 | 1 | 15 | 110 | 6330 | 11 | 263 |
| 17 | 7 | 41 | 2 | 18 | 10 | 185 | 1 | 14 | 60 | 2560 | 10 | 217 |
| 18 | 8 | 51 | 4 | 31 | 10 | 179 | 1 | 14 | 39 | 1340 | 8 | 160 |
| 19 | 10 | 63 | 4 | 32 | 11 | 190 | 1 | 13 | 60 | 1830 | 8 | 150 |
| 20 | 10 | 66 | 4 | 32 | 9 | 153 | 1 | 12 | 92 | 2630 | 7 | 127 |
| 21 | 9 | 61 | 3 | 25 | 8 | 142 | 3 | 19 | 48 | 1390 | 5 | 84 |
| 22 | 9 | 57 | 4 | 35 | 10 | 216 | 9 | 63 | 73 | 2290 | 4 | 62 |
| 23 | 14 | 116 | 4 | 37 | 10 | 321 | 9 | 68 | 46 | 1530 | 4 | 63 |
| 24 | 14 | 119 | 4 | 40 | 20 | 745 | 5 | 45 | 68 | 3250 | 6 | 119 |
| 25 | 11 | 95 | 5 | 48 | 37 | 1250 | 4 | 42 | 100 | 7240 | 26 | 1100 |
| 26 | 14 | 117 | 4 | 37 | 37 | 1120 | 4 | 41 | 152 | 11700 | 53 | 2800 |
| 27 | 15 | 125 | 4 | 36 | 26 | 758 | 3 | 36 | 153 | 12100 | 40 | 1980 |
| 28 | 14 | 122 | 12 | 116 | 21 | 595 | 2 | 24 | 120 | 8650 | 37 | 1550 |
| 29 | 13 | 126 | 64 | 2690 | 18 | 470 | 1 | 12 | --- | --- | 31 | 1140 |
| 30 | 16 | 149 | 256 | 23400 | 16 | 390 | 1 | 11 | --- | --- | 38 | 1450 |
| 31 | 17 | 161 | --- | --- | 15 | 339 | 1 | 11 | --- | --- | 58 | 2820 |
| TOTAL | --- | 2763 | --- | 27858 | --- | 38879 | --- | 2904 | --- | 228607 | --- | 28590 |
| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
| 1 | 81 | 4700 | 1 | 11 | 15 | 262 | 7 | 38 | 19 | 148 | 13 | 97 |
| 2 | 125 | 9280 | 1 | 11 | 230 | 18200 | 13 | 75 | 16 | 117 | 9 | 61 |
| 3 | 136 | 9290 | 5 | 67 | 270 | 14700 | 14 | 73 | 13 | 88 | 4 | 24 |
| 4 | 92 | 5020 | 42 | 2150 | 100 | 3400 | 10 | 57 | 10 | 65 | 7 | 43 |
| 5 | 54 | 2390 | 110 | 8050 | 55 | 1540 | 11 | 68 | 8 | 51 | 6 | 34 |
| 6 | 39 | 1470 | 80 | 4510 | 54 | 1380 | 8 | 69 | 8 | 51 | 5 | 27 |
| 7 | 30 | 996 | 38 | 1570 | 38 | 1010 | 11 | 72 | 9 | 53 | 4 | 19 |
| 8 | 21 | 629 | 25 | 810 | 49 | 1510 | 12 | 83 | 10 | 63 | 2 | 9.4 |
| 9 | 18 | 491 | 22 | 606 | 42 | 1040 | 11 | 73 | 13 | 94 | 3 | 15 |
| 10 | 16 | 404 | 18 | 424 | 33 | 794 | 12 | 76 | 10 | 62 | 2 | 10 |
| 11 | 12 | 280 | 11 | 223 | 41 | 971 | 8 | 48 | 5 | 30 | 2 | 9.7 |
| 12 | 10 | 215 | 8 | 146 | 35 | 701 | 49 | 804 | 4 | 23 | 3 | 14 |
| 13 | 6 | 122 | 6 | 106 | 18 | 318 | 64 | 1650 | 7 | 38 | 2 | 9.2 |
| 14 | 6 | 118 | 3 | 49 | 19 | 328 | 36 | 640 | 6 | 34 | 2 | 8.3 |
| 15 | 5 | 99 | 3 | 48 | 17 | 262 | 36 | 615 | 6 | 31 | 2 | 8.0 |
| 16 | 4 | 77 | 2 | 31 | 18 | 251 | 128 | 2600 | 11 | 73 | 2 | 8.2 |
| 17 | 4 | 74 | 1 | 15 | 20 | 255 | 78 | 1160 | 20 | 141 | 2 | 8.5 |
| 18 | 3 | 53 | 1 | 16 | 18 | 218 | 54 | 668 | 21 | 127 | 2 | 7.8 |
| 19 | 2 | 35 | 1 | 18 | 15 | 176 | 41 | 410 | 20 | 116 | 2 | 7.3 |
| 20 | 1 | 17 | 1 | 18 | 13 | 141 | 32 | 283 | 15 | 87 | 2 | 7.6 |
| 21 | 1 | 16 | 1 | 16 | 14 | 143 | 23 | 185 | 66 | 873 | 2 | 7.9 |
| 22 | 1 | 15 | 1 | 15 | 16 | 154 | 18 | 133 | 40 | 527 | 2 | 7.8 |
| 23 | 1 | 14 | 1 | 14 | 17 | 156 | 15 | 102 | 26 | 293 | 2 | 7.7 |
| 24 | 1 | 14 | 1 | 14 | 16 | 140 | 15 | 90 | 21 | 209 | 3 | 11 |
| 25 | 1 | 14 | 2 | 30 | 15 | 124 | 19 | 115 | 14 | 127 | 3 | 11 |
| 26 | 1 | 13 | 13 | 383 | 13 | 101 | 24 | 172 | 10 | 87 | 3 | 11 |
| 27 | 1 | 13 | 16 | 475 | 15 | 108 | 23 | 214 | 15 | 178 | 3 | 13 |
| 28 | 1 | 13 | 10 | 254 | 14 | 85 | 20 | 160 | 20 | 235 | 2 | 10 |
| 29 | 1 | 12 | 3 | 64 | 10 | 65 | 20 | 167 | 18 | 187 | 3 | 15 |
| 30 | 1 | 11 | 1 | 19 | 10 | 60 | 20 | 166 | 17 | 153 | 3 | 14 |
| 31 | --- | --- | 1 | 18 | --- | --- | 20 | 163 | 15 | 124 | --- | --- |
| TOTAL | --- | 35895 | --- | 20181 | --- | 48593 | --- | 11209 | --- | 4485 | --- | 536.4 |

TOTAL LOAD FOR YEAR: 450500.4 TONS.

## 01643700 GOOSE CREEK NEAR MIDDLEBURG, VA

**LOCATION.**--Lat 38°59'11", long 77°47'49", Loudoun County, Hydrologic Unit 02070008, on right bank 250 ft upstream from bridge on State Highway 611, 2.0 mi downstream from Panther Skin Creek, and 3.4 mi northwest of Middleburg.

**DRAINAGE AREA.**--123 $mi^2$.

**PERIOD OF RECORD.**--October 1965 to September 1967, July 1969 to current year.

**REVISED RECORDS.**--WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 329.80 ft above National Geodetic Vertical Datum of 1929. October 1965 to September 1967, at site 300 ft downstream at datum 0.73 ft lower.

**REMARKS.**--Estimated daily discharges: Jan. 10-30 and Feb. 3-11. Records good except those for periods with ice effect, Jan. 10-30 and Feb. 3-11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--18 years, 137 $ft^3/s$, 15.13 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 19,200 $ft^3/s$, June 22, 1972, gage height, 27.46 ft, from floodmarks, from rating curve extended above 2,900 $ft^3/s$ on basis of slope-area measurements at gage heights 14.44 ft and 27.46 ft; no flow Sept. 21-26, 1985.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,350 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1330 | *6,860 | *16.72 | No other peak equal to or greater than base discharge. | | | |

No flow Sept. 21-26.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 79 | 22 | 107 | 34 | 259 | 89 | 117 | 22 | 62 | 1.6 | 1.4 | .54 |
| 2 | 49 | 19 | 77 | 51 | 476 | 85 | 91 | 22 | 29 | 1.8 | 2.1 | .43 |
| 3 | 21 | 16 | 70 | 77 | 170 | 75 | 82 | 48 | 22 | 2.0 | 1.8 | .39 |
| 4 | 15 | 15 | 58 | 131 | 118 | 75 | 78 | 40 | 20 | 2.9 | 1.2 | .36 |
| 5 | 10 | 22 | 50 | 136 | 100 | 73 | 73 | 28 | 23 | 4.3 | 1.0 | .41 |
| 6 | 8.9 | 33 | 147 | 129 | 95 | 61 | 67 | 25 | 54 | 3.1 | .73 | .44 |
| 7 | 7.8 | 23 | 112 | 114 | 90 | 55 | 60 | 22 | 29 | 2.0 | .58 | .42 |
| 8 | 7.2 | 18 | 84 | 99 | 87 | 58 | 56 | 21 | 37 | 1.3 | .63 | .37 |
| 9 | 7.2 | 16 | 70 | 77 | 94 | 55 | 55 | 22 | 30 | 1.2 | .62 | .36 |
| 10 | 7.2 | 15 | 64 | 60 | 92 | 51 | 51 | 17 | 23 | 1.1 | .56 | .34 |
| 11 | 7.2 | 16 | 61 | 52 | 88 | 50 | 51 | 15 | 19 | .88 | .53 | .28 |
| 12 | 8.4 | 16 | 53 | 45 | 2950 | 54 | 49 | 15 | 19 | .81 | .47 | .22 |
| 13 | 7.8 | 13 | 50 | 40 | 721 | 45 | 47 | 24 | 17 | .93 | .39 | .17 |
| 14 | 7.8 | 11 | 47 | 34 | 408 | 44 | 45 | 20 | 13 | 1.1 | .34 | .12 |
| 15 | 7.2 | 11 | 42 | 30 | 293 | 42 | 45 | 15 | 12 | 2.1 | .30 | .08 |
| 16 | 8.9 | 13 | 40 | 28 | 218 | 43 | 48 | 16 | 12 | 36 | .27 | .04 |
| 17 | 11 | 14 | 41 | 29 | 182 | 43 | 44 | 46 | 13 | 8.1 | .25 | .03 |
| 18 | 13 | 14 | 39 | 29 | 150 | 36 | 40 | 47 | 11 | 2.3 | .34 | .03 |
| 19 | 13 | 30 | 37 | 29 | 131 | 34 | 38 | 31 | 8.5 | .98 | .33 | .02 |
| 20 | 16 | 42 | 37 | 28 | 119 | 35 | 36 | 22 | 7.4 | .66 | .21 | .01 |
| 21 | 22 | 26 | 36 | 29 | 107 | 34 | 36 | 19 | 5.7 | .44 | 1.2 | .00 |
| 22 | 20 | 20 | 48 | 31 | 103 | 35 | 34 | 18 | 5.2 | .42 | 6.4 | .00 |
| 23 | 20 | 16 | 40 | 30 | 109 | 80 | 31 | 26 | 4.6 | .35 | 3.1 | .00 |
| 24 | 31 | 16 | 35 | 29 | 124 | 153 | 30 | 45 | 4.2 | .25 | 1.2 | .00 |
| 25 | 40 | 16 | 35 | 28 | 126 | 173 | 37 | 28 | 5.2 | .22 | .89 | .00 |
| 26 | 29 | 15 | 31 | 27 | 131 | 114 | 34 | 21 | 3.5 | .35 | 1.1 | .00 |
| 27 | 24 | 14 | 31 | 27 | 114 | 112 | 28 | 16 | 2.3 | 2.7 | 2.5 | .14 |
| 28 | 22 | 80 | 31 | 26 | 93 | 101 | 28 | 15 | 1.7 | 15 | 4.8 | .07 |
| 29 | 94 | 614 | 31 | 26 | --- | 95 | 27 | 20 | 1.5 | 6.1 | 2.7 | .03 |
| 30 | 45 | 179 | 31 | 25 | --- | 99 | 29 | 19 | 1.6 | 3.3 | 1.1 | .02 |
| 31 | 28 | --- | 31 | 38 | --- | 95 | --- | 64 | --- | 2.0 | .78 | --- |
| TOTAL | 687.6 | 1375 | 1666 | 1568 | 7748 | 2194 | 1487 | 809 | 496.4 | 106.29 | 39.82 | 5.32 |
| MEAN | 22.2 | 45.8 | 53.7 | 50.6 | 277 | 70.8 | 49.6 | 26.1 | 16.5 | 3.43 | 1.28 | .18 |
| MAX | 94 | 614 | 147 | 136 | 2950 | 173 | 117 | 64 | 62 | 36 | 6.4 | .54 |
| MIN | 7.2 | 11 | 31 | 25 | 87 | 34 | 27 | 15 | 1.5 | .22 | .21 | .00 |
| CFSM | .18 | .37 | .44 | .41 | 2.25 | .58 | .40 | .21 | .13 | .03 | .01 | .00 |
| IN. | .21 | .42 | .50 | .47 | 2.34 | .66 | .45 | .24 | .15 | .03 | .01 | .00 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 69921.6 | MEAN | 191 | MAX | 4160 | MIN | 7.2 | CFSM | 1.55 | IN. | 21.15 |
| WTR YR 1985 | TOTAL | 18182.43 | MEAN | 49.8 | MAX | 2950 | MIN | .00 | CFSM | .40 | IN. | 5.50 |

## 01644000 GOOSE CREEK NEAR LEESBURG, VA

**LOCATION.**--Lat 39°01'10", long 77°34'40", Loudoun County, Hydrologic Unit 02070008, on left bank 400 ft upstream from bridge on State Highway 621 at Evergreen Mills, 1.4 mi downstream from Little River, 6.7 mi south of Leesburg, and 10.9 mi upstream from mouth.

**DRAINAGE AREA.**--332 $mi^2$.

**PERIOD OF RECORD.**--July 1909 to April 1911, September 1911 to December 1912, January 1930 to current year.

**REVISED RECORDS.**--WSP 851: 1935-37. WSP 951: 1933(M), 1937. WSP 1302: 1934-35(M). WSP 2103: Drainage area. WDR VA-72-1: 1937(M), 1943(M), 1951(M), 1956(M). WDR VA-79-1: 1978.

**GAGE.**--Water-stage recorder. Datum of gage is 248.93 ft above National Geodetic Vertical Datum of 1929. July 12, 1909, to Dec. 31, 1912, nonrecording gage at site 1,000 ft downstream at different datum. Jan. 21, 1930, to Nov. 28, 1938, nonrecording gage at site 400 ft downstream at datum 4.20 ft lower than present datum.

**REMARKS.**--Estimated daily discharges: Jan. 11, Feb. 4-8, and July 1 to Sept. 30. Records good except those for period of doubtful record, July 1 to Sept. 30, and periods with ice effect, Jan. 11 and Feb. 4-8, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--57 years (water years 1910, 1912, 1931-85), 317 $ft^3/s$, 12.97 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 78,100 $ft^3/s$, June 22, 1972, gage height, 30.59 ft, from high-water mark in gage house, from rating curve extended above 11,000 $ft^3/s$ on basis of slope-area measurement of peak flow; minimum daily, 0.40 $ft^3/s$, Sept. 27-30, 1941.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in May or June 1889 reached a stage of about 29 ft, discharge, about 45,000 $ft^3/s$, site and datum in use 1930-38, from information by local residents.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 4,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 0630 | 4,440 | 7.26 | Feb. 12 | 2130 | *13,100 | *15.88 |

Minimum daily discharge, 0.42 $ft^3/s$, Sept. 21, 22, 25.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 173 | 78 | 377 | 108 | 366 | 253 | 322 | 73 | 235 | 8.8 | 15 | 3.4 |
| 2 | 191 | 71 | 269 | 133 | 3120 | 244 | 269 | 72 | 119 | 9.5 | 13 | 2.0 |
| 3 | 90 | 64 | 242 | 227 | 1470 | 220 | 227 | 118 | 85 | 12 | 7.5 | 1.7 |
| 4 | 63 | 61 | 209 | 344 | 900 | 205 | 213 | 140 | 70 | 14 | 5.1 | 2.2 |
| 5 | 55 | 82 | 177 | 392 | 600 | 213 | 199 | 95 | 70 | 13 | 3.6 | 1.5 |
| 6 | 50 | 94 | 508 | 395 | 420 | 188 | 185 | 80 | 107 | 14 | 3.1 | 1.4 |
| 7 | 49 | 90 | 442 | 339 | 300 | 163 | 167 | 72 | 114 | 16 | 2.5 | 1.3 |
| 8 | 47 | 74 | 303 | 302 | 250 | 165 | 158 | 67 | 90 | 14 | 2.5 | 1.1 |
| 9 | 46 | 67 | 262 | 242 | 215 | 166 | 153 | 61 | 97 | 10 | 2.5 | 1.1 |
| 10 | 43 | 64 | 226 | 204 | 215 | 152 | 144 | 59 | 76 | 8.1 | 1.6 | 1.0 |
| 11 | 38 | 67 | 209 | 190 | 231 | 145 | 139 | 56 | 62 | 6.0 | 1.5 | 1.1 |
| 12 | 34 | 69 | 187 | 174 | 7290 | 156 | 138 | 58 | 57 | 6.7 | 1.5 | 1.1 |
| 13 | 34 | 65 | 172 | 181 | 3570 | 145 | 131 | 103 | 54 | 17 | 1.4 | .85 |
| 14 | 32 | 59 | 158 | 182 | 1010 | 133 | 128 | 78 | 46 | 10 | 1.2 | .80 |
| 15 | 29 | 54 | 145 | 149 | 681 | 129 | 127 | 61 | 40 | 12 | 1.0 | .80 |
| 16 | 34 | 54 | 139 | 115 | 522 | 121 | 132 | 58 | 39 | 26 | 1.0 | .75 |
| 17 | 41 | 55 | 134 | 156 | 449 | 118 | 129 | 117 | 40 | 65 | 1.0 | .60 |
| 18 | 45 | 55 | 132 | 158 | 384 | 115 | 115 | 162 | 38 | 25 | 1.4 | .55 |
| 19 | 50 | 86 | 127 | 149 | 349 | 109 | 109 | 109 | 33 | 12 | 10 | .48 |
| 20 | 57 | 120 | 125 | 99 | 326 | 109 | 106 | 79 | 28 | 6.9 | 11 | .50 |
| 21 | 63 | 103 | 124 | 92 | 290 | 109 | 102 | 66 | 26 | 4.1 | 12 | .42 |
| 22 | 72 | 83 | 146 | 96 | 283 | 108 | 99 | 59 | 23 | 3.2 | 13 | .42 |
| 23 | 84 | 75 | 137 | 101 | 298 | 205 | 95 | 73 | 21 | 2.3 | 10 | .45 |
| 24 | 118 | 71 | 119 | 107 | 327 | 491 | 92 | 122 | 47 | 1.7 | 8.1 | .45 |
| 25 | 129 | 69 | 115 | 114 | 333 | 546 | 113 | 102 | 32 | 1.7 | 6.0 | .42 |
| 26 | 115 | 67 | 107 | 116 | 325 | 376 | 109 | 76 | 24 | 4.7 | 7.4 | 1.4 |
| 27 | 104 | 65 | 103 | 102 | 331 | 315 | 92 | 60 | 16 | 38 | 12 | 3.4 |
| 28 | 102 | 316 | 104 | 101 | 277 | 281 | 86 | 87 | 12 | 39 | 11 | 5.6 |
| 29 | 205 | 1980 | 106 | 101 | --- | 258 | 83 | 130 | 10 | 35 | 6.7 | 3.4 |
| 30 | 161 | 598 | 104 | 95 | --- | 260 | 77 | 83 | 9.5 | 26 | 5.1 | 1.2 |
| 31 | 93 | --- | 103 | 99 | --- | 269 | --- | 122 | --- | 17 | 4.7 | --- |
| TOTAL | 2447 | 4856 | 5811 | 5363 | 25132 | 6467 | 4239 | 2698 | 1720.5 | 478.7 | 183.4 | 41.39 |
| MEAN | 78.9 | 162 | 187 | 173 | 898 | 209 | 141 | 87.0 | 57.4 | 15.4 | 5.92 | 1.38 |
| MAX | 205 | 1980 | 508 | 395 | 7290 | 546 | 322 | 162 | 235 | 65 | 15 | 5.6 |
| MIN | 29 | 54 | 103 | 92 | 215 | 108 | 77 | 56 | 9.5 | 1.7 | 1.0 | .42 |
| CFSM | .24 | .49 | .56 | .52 | 2.70 | .63 | .42 | .26 | .17 | .05 | .02 | .00 |
| IN. | .27 | .54 | .65 | .60 | 2.82 | .72 | .47 | .30 | .19 | .05 | .02 | .00 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 194143 | MEAN | 530 | MAX | 9000 | MIN | 28 | CFSM 1.60 | IN. | 21.75 |
| WTR YR 1985 | TOTAL | 59436.99 | MEAN | 163 | MAX | 7290 | MIN | .42 | CFSM .49 | IN. | 6.66 |

## 01646000 DIFFICULT RUN NEAR GREAT FALLS, VA

**LOCATION.**--Lat 38°58'33", long 77°14'46", Fairfax County, Hydrologic Unit 02070008, on right bank 250 ft downstream from bridge on State Highway 193, 300 ft downstream from Rocky Run, 0.7 mi upstream from mouth, and 1.5 mi southeast of Great Falls.

**DRAINAGE AREA.**--57.9 mi$^2$.

**PERIOD OF RECORD.**--October 1934 to current year. Monthly discharge only October to December 1934, published in WSP 1302.

**REVISED RECORDS.**--WSP 951: 1936(M), 1937-38, 1939-40(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 151.30 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 18-21 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 18-21 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--51 years, 60.0 ft$^3$/s, 14.07 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 32,200 ft$^3$/s, June 22, 1972, gage height, 21.40 ft, from floodmarks, from rating curve extended above 1,600 ft$^3$/s on basis of contracted-opening measurement at gage height 13.18 ft and slope-area measurement at gage height 21.40 ft; minimum, 0.05 ft$^3$/s, Sept. 9, 10, 1966, gage height, 1.65 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0400 | 1,120 | 7.60 | Feb. 12 | 1330 | *1,990 | *9.33 |

Minimum discharge, 3.4 ft$^3$/s, Sept. 7, gage height, 2.29 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 185 | 27 | 52 | 35 | 360 | 38 | 52 | 22 | 47 | 12 | 19 | 5.5 |
| 2 | 104 | 27 | 42 | 52 | 333 | 38 | 40 | 22 | 29 | 13 | 8.5 | 5.0 |
| 3 | 33 | 24 | 67 | 67 | 104 | 37 | 37 | 159 | 26 | 22 | 6.7 | 5.3 |
| 4 | 27 | 24 | 46 | 135 | 66 | 38 | 36 | 39 | 24 | 15 | 5.9 | 4.9 |
| 5 | 25 | 115 | 51 | 110 | 55 | 42 | 35 | 29 | 45 | 12 | 5.5 | 4.6 |
| 6 | 24 | 41 | 265 | 76 | 80 | 36 | 34 | 26 | 57 | 16 | 5.5 | 4.1 |
| 7 | 23 | 30 | 75 | 52 | 63 | 41 | 32 | 24 | 28 | 13 | 5.4 | 3.7 |
| 8 | 23 | 28 | 52 | 46 | 45 | 62 | 33 | 22 | 37 | 11 | 14 | 3.7 |
| 9 | 25 | 27 | 47 | 38 | 43 | 61 | 34 | 21 | 28 | 9.9 | 9.5 | 7.2 |
| 10 | 24 | 27 | 45 | 36 | 40 | 57 | 32 | 20 | 25 | 11 | 6.0 | 114 |
| 11 | 24 | 33 | 43 | 39 | 39 | 56 | 34 | 20 | 22 | 11 | 5.3 | 72 |
| 12 | 24 | 31 | 40 | 38 | 1150 | 70 | 32 | 25 | 27 | 9.6 | 5.2 | 10 |
| 13 | 24 | 26 | 39 | 36 | 174 | 56 | 31 | 71 | 23 | 10 | 4.9 | 6.3 |
| 14 | 24 | 25 | 37 | 36 | 88 | 49 | 31 | 25 | 19 | 8.7 | 11 | 5.1 |
| 15 | 23 | 25 | 36 | 36 | 68 | 35 | 31 | 21 | 19 | 10 | 4.7 | 5.1 |
| 16 | 29 | 26 | 35 | 38 | 56 | 33 | 32 | 94 | 28 | 58 | 4.2 | 5.0 |
| 17 | 26 | 25 | 36 | 35 | 51 | 34 | 30 | 160 | 21 | 13 | 4.9 | 4.7 |
| 18 | 26 | 25 | 35 | 34 | 47 | 33 | 29 | 63 | 19 | 9.5 | 18 | 4.4 |
| 19 | 26 | 112 | 35 | 33 | 48 | 31 | 29 | 33 | 18 | 8.0 | 28 | 4.4 |
| 20 | 26 | 49 | 34 | 33 | 45 | 31 | 28 | 27 | 17 | 7.5 | 8.7 | 4.3 |
| 21 | 25 | 32 | 38 | 32 | 43 | 30 | 27 | 41 | 17 | 7.1 | 13 | 4.1 |
| 22 | 26 | 30 | 47 | 32 | 44 | 34 | 26 | 120 | 15 | 7.0 | 8.4 | 4.1 |
| 23 | 29 | 29 | 35 | 32 | 49 | 97 | 26 | 129 | 15 | 6.3 | 6.8 | 9.4 |
| 24 | 76 | 29 | 33 | 32 | 48 | 158 | 25 | 58 | 63 | 5.9 | 6.0 | 6.7 |
| 25 | 33 | 27 | 34 | 34 | 45 | 96 | 44 | 43 | 40 | 15 | 12 | 4.8 |
| 26 | 28 | 27 | 31 | 31 | 56 | 53 | 28 | 30 | 16 | 22 | 16 | 4.4 |
| 27 | 27 | 27 | 31 | 31 | 49 | 46 | 25 | 26 | 15 | 39 | 33 | 435 |
| 28 | 27 | 161 | 32 | 31 | 39 | 42 | 26 | 75 | 13 | 17 | 10 | 35 |
| 29 | 79 | 588 | 32 | 30 | --- | 41 | 24 | 76 | 13 | 9.7 | 7.2 | 14 |
| 30 | 34 | 79 | 32 | 29 | --- | 49 | 23 | 33 | 13 | 8.5 | 6.5 | 11 |
| 31 | 29 | --- | 34 | 35 | --- | 47 | --- | 95 | --- | 9.3 | 6.0 | --- |
| TOTAL | 1158 | 1776 | 1491 | 1354 | 3328 | 1571 | 946 | 1649 | 779 | 427.0 | 305.8 | 807.8 |
| MEAN | 37.4 | 59.2 | 48.1 | 43.7 | 119 | 50.7 | 31.5 | 53.2 | 26.0 | 13.8 | 9.86 | 26.9 |
| MAX | 185 | 588 | 265 | 135 | 1150 | 158 | 52 | 160 | 63 | 58 | 33 | 435 |
| MIN | 23 | 24 | 31 | 29 | 39 | 30 | 23 | 20 | 13 | 5.9 | 4.2 | 3.7 |
| CFSM | .65 | 1.02 | .83 | .75 | 2.06 | .88 | .54 | .92 | .45 | .24 | .17 | .46 |
| IN. | .74 | 1.14 | .96 | .87 | 2.14 | 1.01 | .61 | 1.06 | .50 | .27 | .20 | .52 |

CAL YR 1984 TOTAL 30893 MEAN 84.4 MAX 1310 MIN 16 CFSM 1.46 IN. 19.85
WTR YR 1985 TOTAL 15592.6 MEAN 42.7 MAX 1150 MIN 3.7 CFSM .74 IN. 10.02

## 01646500 POTOMAC RIVER NEAR WASHINGTON, DC

**LOCATION.**--Lat 38°56'58", long 77°07'40", Montgomery County, Md., Hydrologic Unit 02070008, on left bank just upstream from Little Falls Dam, 1 mi upstream from District of Columbia boundary line, 1.2 mi upstream from Chain Bridge, 1.8 mi east of Langley, Fairfax County, Va., and at mile 117.4.

**DRAINAGE AREA.**--11,560 mi².

**PERIOD OF RECORD.**--March 1930 to current year.

**REVISED RECORDS.**--WSP 726: Drainage area. WDR MD-DE-75-1: 1973-74(M).

**GAGE.**--Water-stage recorder and concrete control. Datum of gage is 37.95 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1930, nonrecording gage, and June 7, 1930, to Jan. 22, 1965, water-stage recorder at site 1 mi upstream on right bank at same datum.

**REMARKS.**--No estimated daily discharges. Records good. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D.C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; since April 1961, at Potomac Filtration Plant for water supply of Washington Suburban Sanitary District; since October 1961, at Fairfax Water Treatment Plant for water supply of city of Fairfax (from Goose Creek); since April 1964, at Violets Lock to Chesapeake and Ohio Canal; and since October 1985, at Fairfax County Water Authority Treatment Plant for water supply of the county. Low flow affected slightly prior to July 1981 by Stony River Reservoir, since December 1950, by Savage River Reservoir, and since July 1981, by Jennings Randolph Lake. Gage-height telemeter at station.

**AVERAGE DISCHARGE.**--55 years, 11,500 ft³/s, 13.51 in/yr, adjusted for diversions.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 484,000 ft³/s, Mar. 19, 1936, gage height, 28.1 ft, site then in use; minimum daily discharge observed at gaging station, 121 ft³/s, Sept. 9, 1966, does not include diversion of 489 ft³/s for municipal use; minimum daily discharge (adjusted), 601 ft³/s, Sept. 10, 1966, include diversion of 449 ft³/s for municipal use.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 45,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 30 | 2245 | 46,900 | 6.54 | Feb. 14 | 0115 | *106,000 | *9.08 |

Minimum daily discharge, 993 ft³/s, Sept. 21, does not include diversion for municipal use; minimum daily (adjusted) discharge, 1,730 ft³/s, Sept. 20.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3280 | 3870 | 39900 | 9070 | 5290 | 27200 | 24300 | 4390 | 7200 | 2110 | 2950 | 2910 |
| 2 | 3900 | 3530 | 25900 | 8640 | 8550 | 23100 | 30700 | 4270 | 15000 | 1960 | 2890 | 2650 |
| 3 | 3460 | 3930 | 18700 | 8900 | 8970 | 19500 | 31200 | 5190 | 27200 | 2160 | 2690 | 2340 |
| 4 | 3310 | 3800 | 14800 | 10000 | 10100 | 16400 | 25800 | 11100 | 17100 | 1840 | 2490 | 2040 |
| 5 | 3410 | 3780 | 12600 | 9670 | 11000 | 14200 | 20600 | 29500 | 12300 | 1960 | 2290 | 1990 |
| 6 | 3660 | 3830 | 12700 | 10400 | 8970 | 12700 | 17600 | 26200 | 12900 | 2040 | 2220 | 1860 |
| 7 | 3430 | 4210 | 12300 | 11900 | 8070 | 11800 | 15300 | 19400 | 10200 | 2200 | 2140 | 1650 |
| 8 | 3100 | 4030 | 11500 | 12600 | 6740 | 11000 | 13600 | 15000 | 11900 | 2100 | 2180 | 1560 |
| 9 | 2910 | 3620 | 10100 | 12200 | 5090 | 10300 | 12300 | 12300 | 11400 | 2290 | 2300 | 1360 |
| 10 | 2770 | 3600 | 9070 | 11400 | 6030 | 9390 | 11500 | 10500 | 9480 | 2310 | 2910 | 2150 |
| 11 | 2590 | 3610 | 8300 | 10400 | 6490 | 8880 | 10700 | 8930 | 9410 | 2260 | 2490 | 2190 |
| 12 | 3180 | 3530 | 7990 | 9240 | 22400 | 8700 | 9870 | 7740 | 8740 | 2340 | 2180 | 1750 |
| 13 | 3210 | 3180 | 7860 | 8180 | 78200 | 8640 | 9220 | 7620 | 7240 | 8610 | 2020 | 1590 |
| 14 | 2880 | 3230 | 7930 | 7700 | 82700 | 8490 | 8640 | 6760 | 6400 | 8840 | 1880 | 1550 |
| 15 | 2420 | 3220 | 8070 | 6980 | 40900 | 10100 | 8370 | 6300 | 6310 | 6440 | 1850 | 1410 |
| 16 | 2490 | 3280 | 8070 | 6450 | 26900 | 10700 | 8300 | 6360 | 5740 | 9100 | 1740 | 1270 |
| 17 | 2420 | 3160 | 7850 | 5920 | 20500 | 9420 | 8020 | 6730 | 5110 | 7300 | 2100 | 1240 |
| 18 | 2310 | 3360 | 7550 | 6390 | 16700 | 8540 | 7570 | 6390 | 4660 | 5680 | 2650 | 1220 |
| 19 | 2330 | 3390 | 7320 | 6260 | 14500 | 7930 | 7220 | 8100 | 4550 | 4430 | 2430 | 1280 |
| 20 | 2450 | 3240 | 7050 | 5280 | 13200 | 7390 | 7000 | 8120 | 4330 | 3530 | 2130 | 1050 |
| 21 | 2470 | 3290 | 7030 | 2770 | 12700 | 7100 | 6890 | 7300 | 3930 | 3080 | 2230 | 993 |
| 22 | 2610 | 3340 | 7960 | 3150 | 13100 | 6590 | 6440 | 6970 | 3620 | 2760 | 4540 | 1100 |
| 23 | 2630 | 3400 | 10800 | 3280 | 13900 | 6660 | 5930 | 6340 | 3410 | 2540 | 4560 | 1240 |
| 24 | 4600 | 3530 | 14800 | 3860 | 16000 | 8210 | 5700 | 6300 | 3270 | 2330 | 3880 | 1230 |
| 25 | 4110 | 3860 | 14600 | 4400 | 26600 | 14200 | 5880 | 6050 | 3210 | 2120 | 3630 | 1110 |
| 26 | 3610 | 3680 | 13100 | 4320 | 34000 | 21800 | 5570 | 7370 | 2920 | 2200 | 3260 | 1150 |
| 27 | 3360 | 3520 | 12100 | 5050 | 35300 | 22000 | 5300 | 11900 | 2740 | 3550 | 3190 | 3570 |
| 28 | 3200 | 3850 | 11800 | 5090 | 31300 | 19200 | 5090 | 11300 | 2560 | 6450 | 4420 | 2410 |
| 29 | 3730 | 12300 | 11300 | 4910 | --- | 16500 | 4880 | 10100 | 2290 | 4330 | 4470 | 2550 |
| 30 | 4460 | 37400 | 10500 | 4620 | --- | 16100 | 4840 | 8140 | 2140 | 3310 | 3690 | 2250 |
| 31 | 4270 | --- | 9720 | 4680 | --- | 21300 | --- | 7590 | --- | 3120 | 3170 | --- |
| TOTAL | 98560 | 149570 | 369270 | 223710 | 584200 | 404040 | 344330 | 300260 | 227260 | 115290 | 87570 | 52663 |
| MEAN | 3179 | 4986 | 11910 | 7216 | 20860 | 13030 | 11480 | 9686 | 7575 | 3719 | 2825 | 1755 |
| MAX | 4600 | 37400 | 39900 | 12600 | 82700 | 27200 | 31200 | 29500 | 27200 | 9100 | 4560 | 3570 |
| MIN | 2310 | 3160 | 7030 | 2770 | 5090 | 6590 | 4840 | 4270 | 2140 | 1840 | 1740 | 993 |
| (*) | 573 | 530 | 528 | 530 | 530 | 508 | 569 | 595 | 612 | 677 | 659 | 668 |
| MEAN† | 3752 | 5516 | 12440 | 7746 | 21390 | 13540 | 12050 | 10280 | 8187 | 4396 | 3484 | 2423 |
| CFSM† | .32 | .48 | 1.08 | .67 | 1.85 | 1.17 | 1.04 | .89 | .71 | .38 | .30 | .21 |
| IN.† | .37 | .54 | 1.24 | .77 | 1.93 | 1.35 | 1.16 | 1.03 | .79 | .44 | .35 | .23 |

CAL YR 1984 TOTAL 6025070 MEAN 16460 MAX 209000 MIN 2280 MEAN† 16990 CFSM† 1.47 IN† 20.01
WTR YR 1985 TOTAL 2956723 MEAN 8101 MAX 82700 MIN 993 CFSM† 8683 CFSM† .75 IN† 10.20

* Diversion, in cfs, for municipal supply of Washington, D.C., Washington Suburban Sanitary District, city of Rockville, city of Fairfax (from Goose Creek), Fairfax County, and the Chesapeake and Ohio Canal (insignificant diversion to canal during current water year); records provided by U.S. Army Corps of Engineers, Washington Suburban Sanitary Commission, city of Rockville, city of Fairfax, and Fairfax County Water Authority.

† Adjusted for diversion.

## 01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC
(National stream-quality accounting network station)

**LOCATION.**--Lat 38°55'46", long 77°07'02", Arlington County, Va., Hydrologic Unit 02070010, under right downstream side of bridge on Virginia State Highway 123, and at river mile 115.9.

**DRAINAGE AREA.**--11,570 $mi^2$.

**PERIOD OF RECORD.**--Water years 1973 to current year. Prior to October 1977, published as "at Great Falls."

**PERIOD OF DAILY RECORD.**--
SPECIFIC CONDUCTANCE: June 1978 to September 1981.
pH: June 1978 to September 1981.
WATER TEMPERATURE: June 1978 to September 1981.
DISSOLVED OXYGEN: June 1978 to September 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1978 to September 1981.

**INSTRUMENTATION.**--Water-quality monitor June 1978 to September 1981.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH (STAND-ARD UNITS) | TEMPER-ATURE, AIR (DEG C) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984 | | | | | | | | | | | |
| 14... | 10:00 | 3220 | 435 | 8.2 | 9.0 | 8.0 | 774 | 1.9 | 14.0 | 116 | -- |
| JAN 1985 | | | | | | | | | | | |
| 14... | 11:00 | 7770 | 275 | 8.1 | 4.0 | 3.0 | 757 | 3.0 | 17.0 | 127 | K7 |
| MAR | | | | | | | | | | | |
| 18... | 12:30 | 8540 | 274 | 8.3 | 6.0 | 9.0 | 766 | 1.5 | 12.9 | 111 | K3 |
| MAY | | | | | | | | | | | |
| 06... | 11:00 | 26000 | 235 | 7.8 | 26.0 | 17.0 | 763 | 5.0 | 9.4 | 97 | 260 |
| JUL | | | | | | | | | | | |
| 08... | 10:00 | 1940 | 325 | 8.0 | 25.5 | 28.0 | 763 | 2.5 | 7.6 | 97 | K14 |
| 08... | 10:05 | 1940 | -- | -- | 25.5 | -- | 763 | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 04... | 11:00 | 1990 | 352 | 8.1 | 27.0 | 28.0 | 766 | 3.4 | 7.7 | 98 | 100 |
| 04... | 11:05 | 1990 | -- | -- | 27.0 | -- | 766 | -- | -- | -- | -- |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | PERCENT SODIUM | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY FIELD (MG/L AS CACO3) | CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984 | | | | | | | | | | | |
| 14... | K2 | 170 | 42 | 49 | 11 | 17 | 18 | 0.6 | 2.9 | 126 | 1.5 |
| JAN 1985 | | | | | | | | | | | |
| 14... | 88 | 110 | 32 | 33 | 7.0 | 8.3 | 14 | 0.4 | 1.8 | 79 | 1.2 |
| MAR | | | | | | | | | | | |
| 18... | 66 | 110 | 42 | 33 | 7.0 | 8.5 | 14 | 0.4 | 1.5 | 69 | 0.7 |
| MAY | | | | | | | | | | | |
| 06... | 71 | 91 | 43 | 27 | 5.6 | 7.7 | 15 | 0.4 | 2.2 | 48 | 1.5 |
| JUL | | | | | | | | | | | |
| 08... | 37 | 120 | 50 | 31 | 9.8 | 16 | 22 | 0.7 | 2.8 | 68 | 1.3 |
| SEP | | | | | | | | | | | |
| 04... | 100 | 140 | 55 | 42 | 9.3 | 17 | 20 | 0.6 | 3.4 | 88 | 1.3 |

## 01646580 POTOMAC RIVER AT CHAIN BRIDGE, AT WASHINGTON, DC--Continued

| DATE | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER AC-FT) | SOLIDS, DIS-SOLVED (TONS PER DAY) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984<br>14... | 54 | 21 | 0.1 | 3.1 | 243 | 230 | 0.33 | 2110 | -- | 1.30 | 0.02 |
| JAN 1985<br>14... | 31 | 12 | 0.1 | 4.3 | 150 | 150 | 0.2 | 3150 | -- | 1.40 | 0.06 |
| MAR<br>18... | 43 | 11 | 0.1 | 2.3 | 153 | 150 | 0.21 | 3530 | -- | 1.10 | 0.05 |
| MAY<br>06... | 39 | 10 | 0.1 | 5.5 | 147 | 130 | 0.2 | 10300 | -- | 0.96 | 0.15 |
| JUL<br>08... | 51 | 19 | 0.2 | 0.9 | 210 | 170 | 0.29 | 1100 | -- | <0.10 | 0.07 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | 0.01 | 0.10 | 0.07 |
| SEP<br>04... | 49 | 19 | 0.1 | 6.3 | 206 | 200 | 0.28 | 1110 | -- | 1.00 | 0.04 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | 0.01 | 1.10 | 0.04 |

| DATE | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) | NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) | NITRO-GEN DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS TOTAL (MG/L AS PO4) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984<br>14... | 0.03 | -- | 0.5 | -- | -- | -- | 0.05 | 0.15 | 0.08 | 0.08 | 0.25 |
| JAN 1985<br>14... | 0.08 | -- | 0.8 | -- | -- | -- | 0.10 | 0.31 | 0.06 | 0.04 | 0.12 |
| MAR<br>18... | 0.06 | -- | 1.1 | -- | -- | -- | 0.07 | 0.21 | 0.04 | 0.03 | 0.09 |
| MAY<br>06... | 0.19 | -- | 1.1 | -- | -- | -- | 0.05 | 0.15 | 0.01 | 0.04 | 0.12 |
| JUL<br>08... | 0.09 | -- | 0.6 | -- | -- | -- | 0.04 | 0.12 | 0.02 | <0.01 | -- |
| 08... | 0.09 | 0.23 | 0.7 | 0.4 | 0.3 | -- | 0.03 | 0.09 | 0.03 | 0.01 | 0.03 |
| SEP<br>04... | 0.05 | -- | 0.5 | -- | -- | -- | 0.10 | 0.31 | 0.09 | 0.09 | 0.28 |
| 04... | 0.05 | 0.36 | 0.5 | 0.1 | 0.4 | 1.5 | 0.11 | 0.34 | 0.09 | 0.08 | 0.25 |

| DATE | ALUM-INUM, DIS-SOLVED (UG/L AS AL) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | BERYL-LIUM, DIS-SOLVED (UG/L AS BE) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984<br>14... | 40 | 1 | 44 | <0.5 | <1 | 3 | <3 | 1 | 16 | 1 |
| MAR<br>18... | 30 | <1 | 37 | 0.7 | <1 | <1 | <3 | 1 | 17 | 1 |
| MAY<br>06... | 70 | <1 | 44 | <0.5 | <1 | <1 | <3 | 5 | 37 | 3 |
| SEP<br>04... | <10 | 1 | 49 | <0.5 | <1 | <1 | <3 | 7 | 5 | <1 |

## 01646580 POTOMAC RIVER AT CHAIN BRIDGE, AT WASHINGTON, DC--Continued

| DATE | LITHIUM DIS-SOLVED (UG/L AS LI) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRON-TIUM, DIS-SOLVED (UG/L AS SR) | VANA-DIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1984 | | | | | | | | | | |
| 14... | 8 | 8 | 0.1 | <10 | 2 | <1 | <1 | 230 | <6 | 12 |
| MAR | | | | | | | | | | |
| 18... | 13 | 11 | <0.1 | <10 | 1 | <1 | <1 | 140 | <6 | 11 |
| MAY | | | | | | | | | | |
| 06... | 17 | 6 | <0.1 | <10 | 2 | <1 | <1 | 120 | <6 | 8 |
| SEP | | | | | | | | | | |
| 04... | 8 | 13 | <0.1 | <10 | 1 | <1 | <1 | 200 | <6 | 23 |

| DATE | GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) | GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) | GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) | GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) | GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) | URANIUM DIS-SOLVED, EXTRAC-TION (UG/L) | RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) |
|---|---|---|---|---|---|---|---|
| MAR 1985 | | | | | | | |
| 18... | <3.4 | <0.4 | <2.3 | <0.4 | <2.0 | 0.26 | 0.05 |
| SEP | | | | | | | |
| 04... | <1.5 | <0.4 | 4.1 | <0.4 | 3.1 | 0.16 | -- |

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|
| NOV 1984 | | | | | |
| 14... | 10:00 | 3220 | 10 | 87 | 64 |
| JAN 1985 | | | | | |
| 14... | 11:00 | 7770 | 4 | 84 | 52 |
| MAR | | | | | |
| 18... | 12:30 | 8540 | 10 | 231 | 76 |
| MAY | | | | | |
| 06... | 11:00 | 26000 | 104 | 7300 | 90 |
| JUL | | | | | |
| 08... | 10:00 | 1940 | 29 | 152 | 57 |
| SEP | | | | | |
| 04... | 11:00 | 1990 | 8 | 43 | 100 |

## 01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

**LOCATION.**--Lat 38°48'46", long 77°13'43", Fairfax County, Hydrologic Unit 02070010, on left bank 800 ft upstream from bridge on State Highway 620, 0.2 mi upstream from Long Branch, and 2.3 mi southwest of Annandale.

**DRAINAGE AREA.**--23.5 mi².

**PERIOD OF RECORD.**--March 1947 to current year (fragmentary prior to October 1947).

**REVISED RECORDS.**--WSP 1502: 1952. WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 191.24 ft above National Geodetic Vertical Datum of 1929 (levels by Stone and Webster Engineering Corporation). Prior to May 12, 1949, nonrecording gage at site 800 ft downstream at datum 0.33 ft lower. May 12, 1949, to June 4, 1970, water-stage recorder at site 800 ft downstream at datum 0.33 ft lower.

**REMARKS.**--Estimated daily discharges: Jan. 11, 12, 16-20, 22, Feb. 6-9, Mar. 14-22, and Aug. 5-14. Records good except those for periods of doubtful or no gage-height record, Mar. 14-22 and Aug. 5-14, and periods with ice effect, Jan. 11, 12, 16-20, 22 and Feb. 6-9, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--38 years, 27.9 ft³/s, 16.12 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 12,000 ft³/s, June 22, 1972, gage height, 15.96 ft, from high-water mark in gage house, from rating curve extended above 6,600 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow; minimum, 0.10 ft³/s, Sept. 25, 1954.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,400 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0100 | 1,670 | 8.33 | Feb. 12 | 1200 | *2,100 | *9.03 |

Minimum discharge, 0.22 ft³/s, Aug. 16, gage height, 1.14 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 179 | 4.5 | 13 | 8.3 | 209 | 11 | 20 | 5.2 | 13 | 2.0 | 11 | 3.1 |
| 2 | 48 | 4.6 | 10 | 32 | 172 | 11 | 11 | 19 | 7.6 | 3.2 | 2.3 | 2.5 |
| 3 | 6.8 | 4.3 | 31 | 64 | 32 | 12 | 10 | 134 | 6.8 | 7.5 | 1.3 | 2.5 |
| 4 | 5.0 | 10 | 12 | 70 | 20 | 17 | 9.7 | 12 | 6.0 | 3.5 | .95 | 1.5 |
| 5 | 4.7 | 170 | 45 | 64 | 16 | 19 | 9.0 | 8.2 | 131 | 2.1 | .80 | 1.8 |
| 6 | 3.7 | 11 | 129 | 24 | 21 | 15 | 8.6 | 7.4 | 27 | 7.3 | .75 | 1.6 |
| 7 | 3.6 | 6.8 | 18 | 16 | 16 | 16 | 7.9 | 6.4 | 11 | 2.4 | .70 | .80 |
| 8 | 3.5 | 6.3 | 13 | 13 | 12 | 21 | 8.1 | 5.5 | 27 | 1.5 | 10 | 17 |
| 9 | 4.3 | 5.9 | 11 | 10 | 11 | 17 | 8.8 | 5.3 | 11 | 1.8 | 3.5 | 24 |
| 10 | 4.3 | 5.4 | 12 | 9.7 | 10 | 15 | 8.4 | 5.3 | 7.8 | 6.0 | 1.5 | 75 |
| 11 | 3.3 | 16 | 10 | 9.6 | 11 | 17 | 8.1 | 5.5 | 7.7 | 2.1 | .90 | 22 |
| 12 | 3.2 | 7.6 | 10 | 9.5 | 710 | 28 | 8.0 | 85 | 13 | 2.0 | .73 | 2.5 |
| 13 | 3.1 | 5.0 | 9.4 | 9.4 | 42 | 15 | 7.5 | 29 | 7.2 | 2.2 | .63 | 1.5 |
| 14 | 3.2 | 4.7 | 8.6 | 9.3 | 23 | 14 | 7.3 | 8.1 | 4.8 | 1.5 | .52 | 1.4 |
| 15 | 3.0 | 5.3 | 8.3 | 8.6 | 18 | 13 | 7.7 | 5.7 | 17 | 1.5 | .44 | 1.2 |
| 16 | 13 | 5.1 | 8.2 | 7.8 | 15 | 12 | 7.8 | 42 | 15 | 12 | .42 | 1.2 |
| 17 | 4.2 | 4.7 | 8.3 | 8.0 | 14 | 12 | 6.8 | 70 | 5.4 | 1.7 | 3.9 | 1.0 |
| 18 | 3.7 | 10 | 8.3 | 8.0 | 12 | 11 | 6.4 | 22 | 4.9 | .96 | 40 | .88 |
| 19 | 3.2 | 94 | 8.8 | 7.8 | 12 | 10 | 6.5 | 8.0 | 4.5 | .83 | 15 | .82 |
| 20 | 3.6 | 14 | 8.3 | 7.6 | 12 | 10 | 6.1 | 6.4 | 7.2 | .78 | 2.2 | .76 |
| 21 | 3.1 | 7.6 | 16 | 7.3 | 12 | 9.5 | 5.7 | 37 | 4.4 | .74 | 8.1 | .76 |
| 22 | 3.9 | 6.6 | 14 | 7.2 | 11 | 11 | 5.9 | 34 | 3.7 | .66 | 1.9 | .70 |
| 23 | 46 | 6.3 | 8.0 | 7.6 | 12 | 127 | 5.3 | 109 | 3.3 | .58 | .96 | 3.4 |
| 24 | 52 | 6.7 | 7.8 | 7.6 | 12 | 102 | 5.9 | 35 | 6.8 | .46 | .89 | 2.2 |
| 25 | 9.3 | 6.0 | 7.7 | 8.3 | 11 | 34 | 25 | 24 | 11 | 16 | 4.0 | 1.1 |
| 26 | 5.0 | 5.7 | 6.5 | 8.0 | 29 | 16 | 7.4 | 8.8 | 3.0 | 14 | 7.8 | 3.0 |
| 27 | 4.6 | 5.6 | 7.0 | 7.1 | 13 | 13 | 6.4 | 7.0 | 2.5 | 32 | 23 | 485 |
| 28 | 8.9 | 269 | 7.2 | 7.3 | 11 | 12 | 6.0 | 83 | 2.3 | 4.2 | 1.9 | 10 |
| 29 | 37 | 261 | 7.3 | 7.5 | --- | 11 | 5.5 | 23 | 2.7 | 1.4 | 1.3 | 3.7 |
| 30 | 6.1 | 19 | 7.3 | 6.8 | --- | 22 | 5.3 | 9.3 | 2.4 | 1.2 | 6.0 | 2.7 |
| 31 | 4.8 | --- | 7.2 | 9.1 | --- | 12 | --- | 66 | --- | 51 | 4.0 | --- |
| TOTAL | 487.1 | 988.7 | 478.2 | 480.4 | 1499 | 665.5 | 252.1 | 926.1 | 377.0 | 185.11 | 157.39 | 675.62 |
| MEAN | 15.7 | 33.0 | 15.4 | 15.5 | 53.5 | 21.5 | 8.40 | 29.9 | 12.6 | 5.97 | 5.08 | 22.5 |
| MAX | 179 | 269 | 129 | 70 | 710 | 127 | 25 | 134 | 131 | 51 | 40 | 485 |
| MIN | 3.0 | 4.3 | 6.5 | 6.8 | 10 | 9.5 | 5.3 | 5.2 | 2.3 | .46 | .42 | .70 |
| CFSM | .67 | 1.40 | .66 | .66 | 2.28 | .91 | .36 | 1.27 | .54 | .25 | .22 | .96 |
| IN. | .77 | 1.57 | .76 | .76 | 2.37 | 1.05 | .40 | 1.47 | .60 | .29 | .25 | 1.07 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 13170.8 | MEAN | 36.0 | MAX | 846 | MIN | 2.7 | CFSM 1.53 | IN. | 20.85 |
| WTR YR 1985 | TOTAL | 7172.22 | MEAN | 19.6 | MAX | 710 | MIN | .42 | CFSM .83 | IN. | 11.35 |

## 01655500 CEDAR RUN NEAR WARRENTON, VA

LOCATION.--Lat 38°44'25", long 77°47'16", Fauquier County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on State Highway 672, 1.9 mi north of Warrenton, and 14.5 mi upstream from Licking Run.

DRAINAGE AREA.--12.3 $mi^2$.

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 1382: 1951-53. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 419.40 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-23 and Aug. 17 to Sept. 30. Records good except those for periods of no gage-height record, Jan. 21-23 and Aug. 17 to Sept. 30, which are fair. Some regulation by town of Warrenton at municipal water-supply reservoir 400 ft upstream, capacity, 368 acre-ft, from which an average of less than 0.8 $ft^3/s$ is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--35 years, 12.9 $ft^3/s$, 14.24 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,840 $ft^3/s$, June 21, 1972, gage height, 12.87 ft, from rating curve extended above 600 $ft^3/s$ on basis of areal study of flood of 1942; no flow part or all of each day Aug. 11-14, 1967, and all of each day Sept. 2-9, 16-26, 1985, probably caused by dam 400 ft upstream from gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of about 13 ft, discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 0830 | *1,410 | *8.01 | No other peak equal to or greater than base discharge. | | | |

No flow Sept. 2-9, 16-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 2.8 | 9.9 | 7.7 | 52 | 8.4 | 8.4 | .76 | 9.4 | .03 | .02 | .01 |
| 2 | 6.4 | 3.4 | 7.4 | 11 | 26 | 8.1 | 6.6 | 1.4 | 4.3 | .05 | .02 | .00 |
| 3 | 1.6 | .70 | 8.1 | 14 | 24 | 6.9 | 6.0 | 5.0 | 3.0 | .04 | .02 | .00 |
| 4 | .90 | 1.3 | 6.6 | 22 | 17 | 6.9 | 5.4 | 3.2 | 2.3 | .04 | .02 | .00 |
| 5 | .80 | 4.5 | 6.6 | 24 | 13 | 7.2 | 5.4 | 2.2 | 3.8 | .03 | .02 | .00 |
| 6 | .48 | 4.1 | 22 | 21 | 12 | 5.2 | 5.4 | 1.8 | 5.0 | .03 | .01 | .00 |
| 7 | .48 | 1.9 | 14 | 20 | 12 | 5.0 | 4.5 | 2.0 | 2.8 | .03 | .01 | .00 |
| 8 | .48 | 1.6 | 11 | 17 | 8.4 | 5.4 | 4.3 | .59 | 3.0 | .03 | .01 | .00 |
| 9 | .62 | 2.0 | 9.2 | 12 | 6.0 | 5.7 | 5.2 | .53 | 2.2 | .03 | .01 | .00 |
| 10 | .48 | 2.0 | 7.7 | 12 | 6.3 | 4.7 | 1.9 | .65 | 1.7 | .03 | .01 | 2.5 |
| 11 | .48 | 3.6 | 7.7 | 13 | 5.5 | 4.5 | 3.9 | .65 | 1.2 | .03 | .01 | .10 |
| 12 | .80 | 2.6 | 6.9 | 11 | 343 | 8.8 | 3.6 | 2.0 | 1.7 | .03 | .01 | .02 |
| 13 | .55 | 4.5 | 6.0 | 5.2 | 63 | .76 | 3.6 | 5.4 | 1.6 | .03 | .01 | .01 |
| 14 | .41 | 1.0 | 5.7 | 6.0 | 33 | 2.5 | 3.4 | 2.2 | .06 | .03 | .01 | .01 |
| 15 | .13 | .35 | 5.5 | 5.0 | 22 | 3.9 | 3.6 | .65 | .06 | .03 | .01 | .01 |
| 16 | .25 | .48 | 4.9 | 2.8 | 17 | 2.5 | 4.1 | 2.2 | .55 | .03 | .01 | .00 |
| 17 | .48 | .29 | 4.9 | 4.9 | 15 | 4.3 | 3.1 | 8.5 | .78 | .02 | .01 | .00 |
| 18 | .55 | .35 | 4.9 | 5.7 | 12 | 3.6 | 2.8 | 4.8 | .58 | .02 | .04 | .00 |
| 19 | .62 | 7.7 | 4.9 | 4.9 | 11 | 1.2 | 3.1 | 1.9 | .56 | .02 | .04 | .00 |
| 20 | 2.2 | 6.6 | 4.5 | 4.4 | 10 | 3.4 | 2.6 | 1.3 | .15 | .02 | .06 | .00 |
| 21 | 2.4 | 4.1 | 5.2 | 3.2 | 9.2 | 2.8 | 2.5 | 1.2 | .04 | .02 | .10 | .00 |
| 22 | 2.4 | 3.6 | 6.0 | 2.7 | 9.2 | 3.6 | 2.0 | .99 | .04 | .02 | .04 | .00 |
| 23 | 3.0 | 2.8 | 4.5 | 2.5 | 11 | 9.9 | 2.2 | 3.7 | .04 | .02 | .02 | .00 |
| 24 | 3.6 | 2.5 | 4.5 | 2.5 | 22 | 13 | 2.2 | 4.9 | .04 | .01 | .01 | .00 |
| 25 | 2.4 | 2.5 | 4.9 | 2.8 | 9.2 | 14 | 4.5 | 3.3 | .06 | .02 | .01 | .00 |
| 26 | 2.0 | 2.4 | 3.4 | 3.2 | 13 | 12 | 3.1 | 2.0 | .11 | .03 | .04 | .00 |
| 27 | 1.6 | 2.4 | 3.6 | 2.2 | 11 | 11 | 2.2 | 1.3 | .03 | .08 | .15 | .06 |
| 28 | 2.7 | 36 | 3.4 | 2.4 | 9.2 | 9.9 | 1.9 | 1.7 | .02 | .02 | .05 | .03 |
| 29 | 7.4 | 57 | 3.6 | 2.4 | --- | 9.5 | 1.6 | 2.2 | .03 | .02 | .02 | .02 |
| 30 | 4.1 | 15 | 4.9 | 2.4 | --- | 9.5 | 1.2 | 1.4 | .03 | .02 | .01 | .01 |
| 31 | 3.6 | --- | 6.3 | 3.4 | --- | 7.8 | --- | 16 | --- | .02 | .01 | --- |
| TOTAL | 66.91 | 180.07 | 208.7 | 253.3 | 802.0 | 201.96 | 110.3 | 86.42 | 45.18 | .88 | .82 | 2.78 |
| MEAN | 2.16 | 6.00 | 6.73 | 8.17 | 28.6 | 6.51 | 3.68 | 2.79 | 1.51 | .03 | .03 | .09 |
| MAX | 13 | 57 | 22 | 24 | 343 | 14 | 8.4 | 16 | 9.4 | .08 | .15 | 2.5 |
| MIN | .13 | .29 | 3.4 | 2.2 | 5.5 | .76 | 1.2 | .53 | .02 | .01 | .01 | .00 |
| CFSM | .18 | .49 | .55 | .66 | 2.33 | .53 | .30 | .23 | .12 | .00 | .00 | .01 |
| IN. | .20 | .54 | .63 | .77 | 2.43 | .61 | .33 | .26 | .14 | .00 | .00 | .01 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 7160.64 | MEAN | 19.6 | MAX | 639 | MIN | .13 | CFSM | 1.59 | IN. 21.66 |
| WTR YR 1985 | TOTAL | 1959.32 | MEAN | 5.37 | MAX | 343 | MIN | .00 | CFSM | .44 | IN. 5.93 |

## 01656000 CEDAR RUN NEAR CATLETT, VA

LOCATION.--Lat 38°38'12", long 77°37'31", Fauquier County, Hydrologic Unit 02070010, on right bank 100 ft downstream from bridge on State Highway 806, 0.9 mi downstream from Licking Run, and 1.4 mi southeast of Catlett.

DRAINAGE AREA.--93.4 mi².

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1973-77(P).

GAGE.--Water-stage recorder. Datum of gage is 199.15 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 11-16, 18-21 and Feb. 7-10. Records good except those for periods with ice effect, Jan. 11-16, 18-21 and Feb. 7-10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--35 years, 88.9 ft³/s, 12.93 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,600 ft³/s, June 22, 1972, gage height, 27.66 ft, from floodmarks, from rating curve extended above 5,000 ft³/s on basis of contracted-opening measurement of peak flow; no flow many days in 1954, 1957, 1959, 1963, 1964, 1966, and 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of about 22 ft, discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,800 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0200 | 1,880 | 8.57 | Feb. 12 | 1230 | *3,170 | *10.64 |
| Feb. 2 | 1230 | 2,130 | 9.05 | | | | |

Minimum discharge, 0.02 ft³/s, Sept. 25, 26, gage height, 1.59 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 48 | 12 | 130 | 19 | 395 | 66 | 48 | 7.0 | 138 | 1.6 | .56 | .32 |
| 2 | 56 | 9.5 | 80 | 37 | 1130 | 57 | 43 | 6.8 | 38 | 1.2 | .77 | .23 |
| 3 | 19 | 8.0 | 83 | 107 | 395 | 49 | 35 | 29 | 23 | 2.0 | 1.4 | .17 |
| 4 | 10 | 7.1 | 66 | 310 | 213 | 46 | 32 | 26 | 18 | 5.0 | .88 | .09 |
| 5 | 7.4 | 19 | 55 | 264 | 138 | 52 | 30 | 15 | 21 | 2.6 | .57 | .07 |
| 6 | 5.6 | 25 | 350 | 200 | 98 | 44 | 27 | 11 | 65 | 1.8 | .42 | .08 |
| 7 | 5.4 | 17 | 175 | 137 | 90 | 35 | 24 | 11 | 29 | 1.6 | .30 | .07 |
| 8 | 5.2 | 11 | 102 | 105 | 68 | 36 | 21 | 7.8 | 24 | 1.1 | .30 | .06 |
| 9 | 5.1 | 8.6 | 80 | 68 | 52 | 36 | 20 | 6.6 | 22 | .87 | .20 | .05 |
| 10 | 5.3 | 8.1 | 68 | 53 | 51 | 33 | 21 | 7.1 | 16 | .86 | .21 | 44 |
| 11 | 5.4 | 11 | 62 | 40 | 50 | 30 | 17 | 5.7 | 12 | .90 | .18 | 19 |
| 12 | 7.2 | 9.5 | 50 | 32 | 1930 | 37 | 19 | 13 | 11 | .85 | .12 | 1.4 |
| 13 | 5.2 | 10 | 47 | 25 | 534 | 37 | 18 | 28 | 9.7 | 1.0 | .10 | .57 |
| 14 | 4.9 | 8.3 | 40 | 26 | 299 | 25 | 18 | 15 | 9.0 | .84 | .09 | .30 |
| 15 | 5.0 | 12 | 38 | 26 | 223 | 26 | 18 | 9.3 | 6.7 | .68 | .06 | .17 |
| 16 | 4.9 | 8.0 | 36 | 32 | 156 | 24 | 18 | 7.3 | 7.3 | .65 | .05 | .09 |
| 17 | 8.6 | 6.7 | 33 | 28 | 93 | 22 | 19 | 44 | 7.7 | .65 | .05 | .06 |
| 18 | 5.1 | 6.1 | 31 | 28 | 78 | 23 | 16 | 31 | 6.2 | .48 | .51 | .04 |
| 19 | 4.6 | 75 | 31 | 27 | 79 | 21 | 14 | 16 | 6.5 | .35 | .43 | .04 |
| 20 | 4.6 | 72 | 29 | 25 | 75 | 19 | 14 | 9.6 | 5.2 | .29 | 1.7 | .04 |
| 21 | 13 | 32 | 27 | 23 | 65 | 22 | 13 | 9.3 | 4.3 | .28 | 2.3 | .03 |
| 22 | 8.4 | 21 | 39 | 22 | 67 | 21 | 12 | 6.8 | 3.6 | .20 | 1.4 | .03 |
| 23 | 7.1 | 17 | 32 | 21 | 76 | 51 | 12 | 11 | 3.1 | .08 | .75 | .03 |
| 24 | 37 | 15 | 25 | 21 | 94 | 135 | 11 | 38 | 6.2 | .06 | .48 | .03 |
| 25 | 19 | 13 | 24 | 23 | 74 | 151 | 14 | 41 | 13 | .06 | .51 | .02 |
| 26 | 13 | 12 | 22 | 24 | 148 | 84 | 16 | 20 | 3.0 | .07 | 2.0 | .02 |
| 27 | 9.5 | 11 | 20 | 18 | 127 | 64 | 12 | 12 | 1.8 | .13 | 5.7 | 2.6 |
| 28 | 6.9 | 200 | 20 | 18 | 79 | 54 | 10 | 16 | 1.6 | 4.0 | 1.7 | 1.4 |
| 29 | 25 | 929 | 21 | 18 | --- | 49 | 8.8 | 43 | 1.6 | 2.3 | 1.5 | .69 |
| 30 | 23 | 241 | 19 | 16 | --- | 50 | 8.1 | 18 | 1.8 | 1.2 | .85 | 1.1 |
| 31 | 16 | --- | 19 | 19 | --- | 45 | --- | 250 | --- | .82 | .54 | --- |
| TOTAL | 400.4 | 1834.9 | 1854 | 1812 | 6877 | 1444 | 588.9 | 771.3 | 515.3 | 34.52 | 26.63 | 72.80 |
| MEAN | 12.9 | 61.2 | 59.8 | 58.5 | 246 | 46.6 | 19.6 | 24.9 | 17.2 | 1.11 | .86 | 2.43 |
| MAX | 56 | 929 | 350 | 310 | 1930 | 151 | 48 | 250 | 138 | 5.0 | 5.7 | 44 |
| MIN | 4.6 | 6.1 | 19 | 16 | 50 | 19 | 8.1 | 5.7 | 1.6 | .06 | .05 | .02 |
| CFSM | .14 | .66 | .64 | .63 | 2.63 | .50 | .21 | .27 | .18 | .01 | .01 | .03 |
| IN. | .16 | .73 | .74 | .72 | 2.74 | .58 | .23 | .31 | .21 | .01 | .01 | .03 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 49090.0 | MEAN | 134 | MAX | 3630 | MIN | 3.7 | CFSM | 1.43 | IN. | 19.35 |
| WTR YR 1985 | TOTAL | 16231.75 | MEAN | 44.5 | MAX | 1930 | MIN | .02 | CFSM | .48 | IN. | 6.46 |

## 01656100 CEDAR RUN NEAR ADEN, VA

LOCATION.--Lat 38°36'58", long 77°33'16", Prince William County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on State Highway 611, 0.5 mi downstream from Darrels Run, 0.8 mi downstream from Town Run, and 3.0 mi southwest of Aden.

DRAINAGE AREA.--155 mi².

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 166.27 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 11-16, 19-21 and Feb. 7-10. Records good except those for periods with ice effect, Jan. 11-16, 19-21 and Feb. 7-10, which are fair. Occasional diurnal fluctuation during low flow caused by irrigation dam 4.5 mi upstream from gage. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--13 years, 190 ft³/s, 16.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft³/s, Oct. 1, 1979, gage height, 15.29 ft, from rating curve extended above 6,600 ft³/s; minimum daily, 0.25 ft³/s, Oct. 14, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 21.37 ft, from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,800 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0800 | 4,850 | 11.15 | Feb. 12 | 1900 | *7,090 | *12.49 |

Minimum daily discharge, 0.50 ft³/s, Sept. 25.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 23 | 220 | 37 | 392 | 110 | 76 | 11 | 311 | 4.3 | 1.1 | .78 |
| 2 | 101 | 19 | 145 | 50 | 2290 | 102 | 69 | 10 | 97 | 4.1 | 1.1 | .78 |
| 3 | 38 | 15 | 149 | 170 | 804 | 85 | 56 | 35 | 54 | 4.1 | .85 | .78 |
| 4 | 18 | 14 | 131 | 664 | 376 | 76 | 49 | 59 | 38 | 3.9 | .78 | .71 |
| 5 | 12 | 30 | 106 | 558 | 235 | 87 | 45 | 28 | 34 | 4.7 | .85 | .78 |
| 6 | 9.0 | 47 | 674 | 432 | 174 | 74 | 40 | 20 | 95 | 6.1 | .85 | .78 |
| 7 | 6.0 | 31 | 328 | 262 | 160 | 59 | 36 | 17 | 58 | 5.9 | .92 | .78 |
| 8 | 5.0 | 23 | 184 | 195 | 130 | 58 | 33 | 14 | 42 | 4.3 | 1.1 | .78 |
| 9 | 4.4 | 18 | 147 | 136 | 95 | 59 | 32 | 11 | 40 | 3.9 | .99 | .74 |
| 10 | 4.4 | 16 | 131 | 110 | 80 | 53 | 31 | 10 | 28 | 3.7 | .92 | 3.5 |
| 11 | 5.0 | 18 | 120 | 92 | 78 | 49 | 28 | 10 | 22 | 3.6 | .92 | 21 |
| 12 | 6.6 | 18 | 102 | 80 | 3940 | 54 | 28 | 11 | 29 | 3.2 | .92 | 6.6 |
| 13 | 7.3 | 19 | 92 | 72 | 1840 | 61 | 28 | 74 | 23 | 2.8 | .85 | 4.3 |
| 14 | 4.8 | 16 | 79 | 64 | 463 | 44 | 26 | 30 | 15 | 2.6 | .85 | 3.7 |
| 15 | 5.6 | 16 | 71 | 66 | 328 | 40 | 26 | 15 | 13 | 2.5 | .85 | 3.6 |
| 16 | 6.8 | 18 | 67 | 70 | 233 | 38 | 28 | 18 | 16 | 2.2 | .85 | 3.4 |
| 17 | 8.6 | 14 | 64 | 56 | 161 | 34 | 27 | 94 | 15 | 1.9 | .85 | 2.6 |
| 18 | 7.9 | 13 | 61 | 60 | 142 | 35 | 28 | 75 | 12 | 1.6 | 14 | 2.3 |
| 19 | 5.6 | 115 | 57 | 52 | 136 | 33 | 22 | 36 | 11 | 1.5 | 68 | 1.9 |
| 20 | 8.2 | 152 | 57 | 43 | 136 | 30 | 21 | 20 | 11 | 1.3 | 11 | 1.5 |
| 21 | 13 | 68 | 53 | 37 | 120 | 33 | 20 | 15 | 8.8 | 1.2 | 7.1 | 1.2 |
| 22 | 15 | 45 | 78 | 33 | 120 | 32 | 18 | 13 | 7.4 | 1.2 | 5.2 | .92 |
| 23 | 11 | 36 | 66 | 33 | 133 | 93 | 18 | 15 | 6.1 | 1.1 | 2.6 | .85 |
| 24 | 32 | 32 | 51 | 34 | 149 | 284 | 17 | 50 | 7.4 | .92 | 1.6 | .57 |
| 25 | 29 | 28 | 48 | 37 | 128 | 284 | 17 | 139 | 23 | .85 | 1.5 | .50 |
| 26 | 19 | 25 | 45 | 42 | 234 | 152 | 18 | 55 | 9.6 | .85 | 1.5 | 1.3 |
| 27 | 15 | 24 | 39 | 33 | 212 | 114 | 18 | 65 | 6.1 | .99 | 1.1 | 11 |
| 28 | 13 | 270 | 39 | 33 | 136 | 92 | 16 | 158 | 5.4 | 1.1 | .99 | 9.6 |
| 29 | 124 | 2700 | 42 | 33 | --- | 78 | 13 | 218 | 5.0 | .85 | .99 | 3.9 |
| 30 | 55 | 403 | 39 | 29 | --- | 81 | 12 | 69 | 4.5 | .85 | .85 | 1.8 |
| 31 | 32 | --- | 37 | 36 | --- | 72 | --- | 654 | --- | .92 | .78 | --- |
| TOTAL | 658.2 | 4266 | 3522 | 3649 | 13425 | 2496 | 896 | 2049 | 1047.3 | 79.03 | 132.76 | 92.95 |
| MEAN | 21.2 | 142 | 114 | 118 | 479 | 80.5 | 29.9 | 66.1 | 34.9 | 2.55 | 4.28 | 3.10 |
| MAX | 124 | 2700 | 674 | 664 | 3940 | 284 | 76 | 654 | 311 | 6.1 | 68 | 21 |
| MIN | 4.4 | 13 | 37 | 29 | 78 | 30 | 12 | 10 | 4.5 | .85 | .78 | .50 |
| CFSM | .14 | .92 | .74 | .76 | 3.09 | .52 | .19 | .43 | .23 | .02 | .03 | .02 |
| IN. | .16 | 1.02 | .85 | .88 | 3.22 | .60 | .22 | .49 | .25 | .02 | .03 | .02 |

CAL YR 1984 TOTAL 97608.5 MEAN 267 MAX 8540 MIN 2.2 CFSM 1.72 IN. 23.43
WTR YR 1985 TOTAL 32313.24 MEAN 88.5 MAX 3940 MIN .50 CFSM .57 IN. 7.76

## 01656500 BROAD RUN AT BUCKLAND, VA

LOCATION.--Lat 38°46'50", long 77°40'22", Prince William County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on U.S. Highway 29 at Buckland and 1.1 mi upstream from South Run.

DRAINAGE AREA.--50.5 mi$^2$.

PERIOD OF RECORD.--July 1950 to September 1979, October 1980 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 284.58 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 24, 25 and Feb. 1, 2. Records good except those for periods with ice effect, Jan. 24, 25 and Feb. 1, 2, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--34 years, 52.0 ft$^3$/s, 13.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft$^3$/s, June 21, 1972, gage height, 13.92 ft, from rating curve extended above 3,200 ft$^3$/s on basis of slope-area measurements at gage heights 13.08 ft and 13.92 ft; minimum, 0.20 ft$^3$/s, Oct. 10, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 800 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2330 | 828 | 4.75 | Feb. 12 | 1200 | *2,070 | *6.99 |
| Feb. 2 | 1530 | 850 | 4.80 | | | | |

Minimum daily discharge, 0.54 ft$^3$/s, Sept. 25, 26.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 59 | 14 | 56 | 27 | 168 | 40 | 39 | 10 | 42 | 2.2 | 3.2 | 1.2 |
| 2 | 32 | 14 | 42 | 35 | 591 | 39 | 35 | 11 | 20 | 2.7 | 3.0 | 1.2 |
| 3 | 15 | 13 | 44 | 45 | 132 | 35 | 31 | 22 | 13 | 2.9 | 2.4 | 1.1 |
| 4 | 10 | 12 | 37 | 80 | 75 | 34 | 28 | 17 | 9.6 | 2.7 | 2.1 | .97 |
| 5 | 8.2 | 24 | 33 | 78 | 61 | 35 | 27 | 13 | 11 | 2.0 | 1.6 | .90 |
| 6 | 7.3 | 20 | 124 | 68 | 55 | 31 | 25 | 11 | 17 | 1.9 | 1.5 | .74 |
| 7 | 6.4 | 16 | 80 | 55 | 58 | 28 | 24 | 9.6 | 11 | 1.9 | 1.3 | .62 |
| 8 | 6.8 | 14 | 54 | 45 | 42 | 28 | 23 | 8.2 | 12 | 1.6 | 1.9 | .66 |
| 9 | 7.7 | 14 | 45 | 37 | 36 | 28 | 22 | 8.2 | 8.7 | 1.9 | 2.7 | 1.1 |
| 10 | 7.7 | 14 | 40 | 33 | 29 | 25 | 21 | 7.7 | 7.3 | 2.4 | 1.6 | 1.8 |
| 11 | 7.7 | 14 | 38 | 32 | 31 | 24 | 21 | 7.3 | 6.9 | 2.6 | 1.3 | 2.7 |
| 12 | 7.7 | 15 | 33 | 30 | 1200 | 27 | 20 | 8.7 | 5.7 | 2.7 | .97 | 1.5 |
| 13 | 7.3 | 14 | 31 | 26 | 252 | 25 | 20 | 24 | 5.0 | 3.6 | .82 | 1.2 |
| 14 | 7.7 | 13 | 28 | 25 | 119 | 24 | 20 | 12 | 3.6 | 3.0 | .66 | 1.1 |
| 15 | 7.7 | 12 | 27 | 22 | 89 | 23 | 20 | 8.2 | 3.0 | 3.9 | .58 | 1.0 |
| 16 | 7.7 | 12 | 26 | 19 | 70 | 22 | 21 | 11 | 3.6 | 6.8 | .58 | .90 |
| 17 | 8.2 | 12 | 25 | 22 | 61 | 22 | 19 | 35 | 3.9 | 4.6 | .58 | .82 |
| 18 | 9.2 | 12 | 25 | 24 | 54 | 21 | 18 | 24 | 2.9 | 3.0 | 1.5 | .74 |
| 19 | 9.6 | 37 | 24 | 24 | 49 | 19 | 18 | 15 | 2.7 | 2.2 | 5.4 | .66 |
| 20 | 11 | 28 | 24 | 17 | 46 | 20 | 17 | 11 | 2.7 | 1.8 | 2.7 | .66 |
| 21 | 12 | 19 | 24 | 15 | 42 | 20 | 17 | 8.2 | 2.6 | 1.6 | 2.6 | .62 |
| 22 | 13 | 17 | 30 | 17 | 43 | 20 | 16 | 7.3 | 2.2 | 1.5 | 2.6 | .62 |
| 23 | 16 | 15 | 27 | 18 | 46 | 43 | 15 | 14 | 2.9 | 1.5 | 2.1 | .58 |
| 24 | 21 | 15 | 25 | 18 | 48 | 86 | 14 | 23 | 2.6 | 1.2 | 1.8 | .58 |
| 25 | 17 | 14 | 25 | 19 | 46 | 60 | 22 | 15 | 3.0 | 1.2 | 2.6 | .54 |
| 26 | 15 | 13 | 24 | 21 | 64 | 55 | 19 | 11 | 2.7 | 3.9 | 5.4 | .54 |
| 27 | 14 | 13 | 24 | 18 | 58 | 46 | 16 | 7.7 | 2.7 | 9.2 | 5.0 | 4.0 |
| 28 | 14 | 118 | 24 | 19 | 44 | 40 | 14 | 7.7 | 2.6 | 7.7 | 2.9 | 4.3 |
| 29 | 28 | 330 | 25 | 19 | --- | 37 | 13 | 14 | 2.4 | 4.6 | 2.2 | 1.9 |
| 30 | 21 | 91 | 25 | 17 | --- | 40 | 11 | 9.6 | 2.1 | 3.2 | 1.5 | 1.8 |
| 31 | 16 | --- | 25 | 19 | --- | 36 | --- | 77 | --- | 2.9 | 1.2 | --- |
| TOTAL | 428.9 | 969 | 1114 | 944 | 3609 | 1053 | 626 | 468.4 | 217.4 | 94.9 | 66.29 | 37.05 |
| MEAN | 13.8 | 32.3 | 35.9 | 30.5 | 129 | 34.0 | 20.9 | 15.1 | 7.25 | 3.06 | 2.14 | 1.23 |
| MAX | 59 | 330 | 124 | 80 | 1200 | 86 | 39 | 77 | 42 | 9.2 | 5.4 | 4.3 |
| MIN | 6.4 | 12 | 24 | 15 | 29 | 19 | 11 | 7.3 | 2.1 | 1.2 | .58 | .54 |
| CFSM | .27 | .64 | .71 | .60 | 2.55 | .67 | .41 | .30 | .14 | .06 | .04 | .02 |
| IN. | .32 | .71 | .82 | .70 | 2.66 | .78 | .46 | .35 | .16 | .07 | .05 | .03 |

```
CAL YR 1984   TOTAL   28325.2   MEAN   77.4   MAX   1510   MIN   6.4   CFSM   1.53   IN.   20.87
WTR YR 1985   TOTAL   9627.94   MEAN   26.4   MAX   1200   MIN   .54   CFSM    .52   IN.    7.09
```

## 01656650 BROAD RUN NEAR BRISTOW, VA

**LOCATION.**--Lat 38°44'56", long 77°33'50", Prince William County, Hydrologic Unit 02070010, on left bank 50 ft downstream from bridge on State Highway 619, 0.2 mi upstream from Dawkins Branch, 1.9 mi downstream from Rocky Branch, and 2.3 mi northwest of Bristow.

**DRAINAGE AREA.**--89.6 $mi^2$.

**PERIOD OF RECORD.**--October 1974 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 185 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Oct. 30 to Nov. 27. Records fair except those for period of doubtful gage-height record, Oct. 30 to Nov. 27, which are poor. Town of Manassas diverts about 3.0 $ft^3/s$ daily from municipal water-supply reservoir 6.0 mi upstream. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--11 years, 99.2 $ft^3/s$, 15.04 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 7,800 $ft^3/s$, Oct. 9, 1976, gage height, 16.11 ft, from rating curve extended above 4,100 $ft^3/s$; minimum, 0.90 $ft^3/s$, Sept. 30, 1977.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 900 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2300 | 941 | 5.84 | Feb. 12 | 1930 | *2,410 | *9.64 |

Minimum daily discharge, 2.1 $ft^3/s$, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 35 | 32 | 127 | 24 | 198 | 70 | 66 | 11 | 138 | 6.7 | 9.9 | 9.6 |
| 2 | 68 | 26 | 80 | 45 | 627 | 68 | 59 | 12 | 61 | 7.0 | 8.8 | 9.6 |
| 3 | 63 | 24 | 72 | 97 | 329 | 57 | 45 | 24 | 26 | 7.3 | 8.0 | 9.6 |
| 4 | 20 | 22 | 70 | 154 | 171 | 52 | 42 | 24 | 11 | 7.3 | 7.6 | 9.6 |
| 5 | 9.2 | 27 | 78 | 177 | 112 | 57 | 36 | 16 | 8.8 | 6.4 | 7.6 | 10 |
| 6 | 7.6 | 35 | 199 | 149 | 93 | 57 | 35 | 14 | 9.9 | 6.4 | 7.0 | 7.0 |
| 7 | 7.3 | 40 | 160 | 119 | 87 | 53 | 29 | 16 | 9.9 | 6.4 | 7.0 | 6.0 |
| 8 | 7.0 | 35 | 109 | 107 | 72 | 31 | 29 | 15 | 9.9 | 6.0 | 7.6 | 6.0 |
| 9 | 7.0 | 30 | 84 | 78 | 47 | 16 | 29 | 12 | 9.2 | 7.0 | 7.3 | 16 |
| 10 | 7.0 | 27 | 72 | 50 | 15 | 19 | 22 | 10 | 8.0 | 7.6 | 7.6 | 72 |
| 11 | 7.0 | 25 | 68 | 17 | 16 | 22 | 15 | 12 | 6.4 | 8.8 | 7.3 | 84 |
| 12 | 7.0 | 30 | 49 | 32 | 1550 | 35 | 23 | 14 | 5.4 | 8.4 | 7.0 | 26 |
| 13 | 7.0 | 35 | 13 | 22 | 921 | 32 | 22 | 15 | 8.4 | 5.4 | 6.7 | 17 |
| 14 | 7.0 | 40 | 14 | 26 | 266 | 26 | 20 | 13 | 8.0 | 8.4 | 5.4 | 17 |
| 15 | 8.0 | 30 | 22 | 66 | 163 | 30 | 22 | 13 | 4.5 | 7.3 | 4.8 | 19 |
| 16 | 15 | 25 | 27 | 24 | 119 | 21 | 22 | 14 | 4.5 | 6.7 | 5.4 | 20 |
| 17 | 7.3 | 20 | 31 | 15 | 91 | 23 | 25 | 20 | 4.8 | 11 | 6.0 | 16 |
| 18 | 7.0 | 32 | 31 | 20 | 61 | 31 | 16 | 31 | 4.5 | 9.2 | 7.6 | 9.6 |
| 19 | 6.4 | 76 | 30 | 25 | 66 | 16 | 18 | 22 | 5.1 | 9.9 | 8.4 | 7.0 |
| 20 | 9.2 | 87 | 27 | 36 | 74 | 13 | 18 | 11 | 5.7 | 9.2 | 7.3 | 4.8 |
| 21 | 14 | 70 | 29 | 23 | 72 | 20 | 17 | 12 | 7.6 | 9.2 | 7.6 | 4.5 |
| 22 | 9.9 | 60 | 38 | 14 | 63 | 17 | 16 | 13 | 8.0 | 6.4 | 7.6 | 6.0 |
| 23 | 21 | 50 | 36 | 14 | 64 | 60 | 16 | 17 | 5.7 | 8.8 | 7.6 | 3.7 |
| 24 | 35 | 45 | 29 | 14 | 70 | 174 | 14 | 22 | 5.7 | 8.4 | 7.6 | 2.2 |
| 25 | 21 | 40 | 35 | 14 | 76 | 177 | 21 | 23 | 6.0 | 8.4 | 8.4 | 2.1 |
| 26 | 20 | 35 | 22 | 22 | 114 | 119 | 23 | 20 | 5.7 | 9.2 | 9.2 | 2.4 |
| 27 | 21 | 30 | 20 | 15 | 122 | 87 | 19 | 15 | 6.4 | 10 | 11 | 22 |
| 28 | 25 | 186 | 22 | 15 | 84 | 72 | 19 | 14 | 8.4 | 10 | 9.6 | 9.2 |
| 29 | 36 | 587 | 22 | 15 | --- | 64 | 16 | 17 | 7.0 | 9.6 | 9.2 | 3.0 |
| 30 | 41 | 239 | 25 | 15 | --- | 66 | 14 | 14 | 7.3 | 9.2 | 9.6 | 2.2 |
| 31 | 41 | --- | 25 | 18 | --- | 63 | --- | 100 | --- | 8.4 | 9.2 | --- |
| TOTAL | 596.9 | 2040 | 1666 | 1462 | 5743 | 1648 | 768 | 586 | 416.8 | 250.0 | 240.9 | 433.1 |
| MEAN | 19.3 | 68.0 | 53.7 | 47.2 | 205 | 53.2 | 25.6 | 18.9 | 13.9 | 8.06 | 7.77 | 14.4 |
| MAX | 68 | 587 | 199 | 177 | 1550 | 177 | 66 | 100 | 138 | 11 | 11 | 84 |
| MIN | 6.4 | 20 | 13 | 14 | 15 | 13 | 14 | 10 | 4.5 | 5.4 | 4.8 | 2.1 |
| CFSM | .22 | .76 | .60 | .53 | 2.29 | .59 | .29 | .21 | .16 | .09 | .09 | .16 |
| IN. | .25 | .85 | .69 | .61 | 2.38 | .68 | .32 | .24 | .17 | .10 | .10 | .18 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 47452.1 | MEAN | 130 | MAX | 2950 | MIN | 2.3 | CFSM 1.45 | IN. | 19.70 |
| WTR YR 1985 | TOTAL | 15850.7 | MEAN | 43.4 | MAX | 1550 | MIN | 2.1 | CFSM .48 | IN. | 6.58 |

## 01656725 BULL RUN NEAR CATHARPIN, VA

LOCATION.--Lat 38°53'21", long 77°34'14", Prince William County, Hydrologic Unit 02070010, on right bank 20 ft downstream from bridge on State Highway 705, 0.7 mi downstream from Chestnut Lick, 2.5 mi north of Catharpin, and 6.7 mi northeast of Gainesville.

DRAINAGE AREA.--25.8 $mi^2$.

PERIOD OF RECORD.--May 1969 to current year. Prior to October 1970, published as "on State Highway 705."

REVISED RECORDS.--WDR VA-75-1: 1974(P).

GAGE.--Water-stage recorder. Datum of gage is 237.78 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 17-20 and Feb. 6-8. Records good except those for periods with ice effect, Jan. 17-20 and Feb. 6-8, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--16 years, 33.9 $ft^3/s$, 17.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,400 $ft^3/s$, June 22, 1972, gage height, 18.92 ft, from floodmarks, from rating curve extended above 3,000 $ft^3/s$ on basis of slope-area measurement of peak flow; no flow many days in 1970, 1977, 1980, 1983, and 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 820 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2230 | 1,200 | 5.83 | Feb. 12 | 0930 | *2,560 | *7.50 |

No flow many days in July, August, and September.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23 | 2.4 | 24 | 9.0 | 152 | 14 | 22 | 2.9 | 6.8 | .41 | .01 | .05 |
| 2 | 9.9 | 2.7 | 18 | 14 | 180 | 14 | 14 | 3.1 | 3.3 | .30 | .01 | .02 |
| 3 | 5.2 | 3.3 | 23 | 21 | 54 | 12 | 12 | 13 | 2.4 | .27 | .01 | .01 |
| 4 | 3.5 | 2.2 | 16 | 52 | 28 | 12 | 11 | 7.7 | 2.4 | .27 | .00 | .01 |
| 5 | 3.1 | 6.8 | 18 | 46 | 22 | 13 | 10 | 5.2 | 2.7 | .27 | .00 | .00 |
| 6 | 2.7 | 5.2 | 123 | 33 | 21 | 9.9 | 9.4 | 3.8 | 5.5 | .22 | .00 | .00 |
| 7 | 2.4 | 3.3 | 37 | 25 | 18 | 9.0 | 8.1 | 3.5 | 3.5 | .16 | .00 | .00 |
| 8 | 2.2 | 2.4 | 25 | 20 | 16 | 9.4 | 8.1 | 2.9 | 3.8 | .10 | .01 | .00 |
| 9 | 1.8 | 2.2 | 20 | 14 | 13 | 9.0 | 7.7 | 2.9 | 3.5 | .08 | .01 | .00 |
| 10 | 1.4 | 2.2 | 17 | 13 | 11 | 8.6 | 6.8 | 2.7 | 3.1 | .05 | .01 | 1.0 |
| 11 | 1.7 | 2.7 | 16 | 13 | 12 | 8.1 | 6.8 | 2.2 | 2.4 | .02 | .01 | 7.3 |
| 12 | 1.4 | 2.9 | 14 | 11 | 843 | 9.4 | 6.5 | 2.4 | 2.2 | .02 | .00 | 1.1 |
| 13 | 1.3 | 2.2 | 13 | 11 | 98 | 7.7 | 6.5 | 4.8 | 2.4 | .02 | .00 | .41 |
| 14 | 1.2 | 1.8 | 11 | 11 | 55 | 7.7 | 6.5 | 3.3 | 2.2 | .01 | .00 | .22 |
| 15 | 1.1 | 2.0 | 11 | 10 | 40 | 7.2 | 6.5 | 2.2 | 1.6 | .01 | .00 | .13 |
| 16 | 1.4 | 2.2 | 9.9 | 7.7 | 30 | 6.8 | 6.5 | 2.7 | 1.6 | .01 | .00 | .10 |
| 17 | 1.8 | 2.4 | 9.9 | 7.4 | 24 | 6.8 | 6.1 | 13 | 1.8 | .01 | .01 | .02 |
| 18 | 1.7 | 2.7 | 9.4 | 7.0 | 21 | 6.5 | 5.8 | 7.7 | 1.8 | .00 | .20 | .01 |
| 19 | 1.6 | 12 | 9.0 | 6.4 | 21 | 5.8 | 5.5 | 3.8 | 1.4 | .00 | .78 | .01 |
| 20 | 1.5 | 7.2 | 9.0 | 5.9 | 20 | 5.8 | 4.8 | 2.7 | 1.2 | .00 | 1.1 | .01 |
| 21 | 1.3 | 3.8 | 9.4 | 5.2 | 18 | 5.8 | 4.5 | 2.2 | .96 | .00 | .41 | .00 |
| 22 | 2.2 | 2.9 | 13 | 5.5 | 19 | 6.1 | 4.5 | 1.8 | .85 | .00 | .19 | .00 |
| 23 | 4.1 | 2.4 | 9.4 | 5.8 | 24 | 42 | 4.2 | 5.5 | .74 | .00 | .19 | .00 |
| 24 | 7.1 | 2.2 | 8.6 | 6.1 | 25 | 74 | 3.8 | 7.7 | .85 | .00 | .13 | .00 |
| 25 | 3.5 | 2.0 | 8.1 | 7.2 | 21 | 49 | 10 | 4.5 | 1.2 | .00 | .19 | .00 |
| 26 | 2.4 | 1.8 | 6.8 | 6.8 | 27 | 26 | 6.1 | 2.7 | .85 | .00 | .74 | .00 |
| 27 | 1.8 | 1.6 | 6.8 | 5.5 | 23 | 20 | 4.5 | 2.0 | .52 | .01 | 1.4 | .72 |
| 28 | 2.0 | 168 | 6.8 | 5.5 | 17 | 17 | 4.2 | 2.0 | 1.4 | .01 | .74 | 2.9 |
| 29 | 17 | 210 | 6.8 | 5.8 | --- | 14 | 3.5 | 3.1 | 1.3 | .01 | .24 | 1.2 |
| 30 | 4.8 | 36 | 6.8 | 5.2 | --- | 17 | 3.1 | 2.4 | .74 | .00 | .13 | .30 |
| 31 | 2.9 | --- | 6.8 | 5.8 | --- | 15 | --- | 11 | --- | .01 | .05 | --- |
| TOTAL | 119.0 | 501.5 | 522.5 | 401.8 | 1853 | 468.6 | 219.0 | 137.4 | 65.01 | 2.27 | 6.57 | 15.52 |
| MEAN | 3.84 | 16.7 | 16.9 | 13.0 | 66.2 | 15.1 | 7.30 | 4.43 | 2.17 | .07 | .21 | .52 |
| MAX | 23 | 210 | 123 | 52 | 843 | 74 | 22 | 13 | 6.8 | .41 | 1.4 | 7.3 |
| MIN | 1.1 | 1.6 | 6.8 | 5.2 | 11 | 5.8 | 3.1 | 1.8 | .52 | .00 | .00 | .00 |
| CFSM | .15 | .65 | .66 | .50 | 2.57 | .59 | .28 | .17 | .08 | .00 | .01 | .02 |
| IN. | .17 | .72 | .75 | .58 | 2.67 | .68 | .32 | .20 | .09 | .00 | .01 | .02 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 16126.86 | MEAN | 44.1 | MAX | 1370 | MIN | .52 | CFSM | 1.71 | IN. | 23.25 |
| WTR YR 1985 | TOTAL | 4312.17 | MEAN | 11.8 | MAX | 843 | MIN | .00 | CFSM | .46 | IN. | 6.22 |

## 01656960 CUB RUN NEAR BULL RUN, VA

LOCATION.--Lat 38°49'16", long 77°27'57", Fairfax County, Hydrologic Unit 02070010, on right bank 20 ft downstream from bridge on State Highway 658, 0.6 mi downstream from Big Rocky Run, 1.2 mi southeast of Bull Run, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--49.9 mi².

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 151.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Nov. 6-18, 22-27, Jan. 18-27, 29, Feb. 7-9, and June 10-13. Records good except those for periods of doubtful or no gage-height record, Nov. 6-18, 22-27 and June 10-13, and periods with ice effect, Jan. 18-27, 29 and Feb. 7-9, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--13 years, 57.8 ft³/s, 15.73 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s, Oct. 1, 1979, gage height, 16.43 ft, from rating curve extended above 4,100 ft³/s; minimum daily, 0.10 ft³/s, Oct. 23, 1980, Sept. 30, Oct. 15, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 28.64 ft, from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1800 | *3,210 | *11.92 | No other peak equal to or greater than base discharge. | | | |

Minimum daily discharge, 1.1 ft³/s, July 14, 15, Aug. 14.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 62 | 7.4 | 40 | 9.8 | 234 | 21 | 28 | 3.5 | 40 | 1.6 | 9.4 | 2.5 |
| 2 | 44 | 7.4 | 26 | 15 | 650 | 18 | 25 | 4.1 | 12 | 1.9 | 3.8 | 2.1 |
| 3 | 13 | 7.0 | 31 | 55 | 219 | 13 | 19 | 48 | 6.2 | 3.0 | 2.5 | 2.3 |
| 4 | 9.0 | 14 | 33 | 222 | 102 | 12 | 16 | 22 | 4.1 | 2.7 | 2.1 | 2.3 |
| 5 | 7.8 | 73 | 31 | 187 | 60 | 14 | 14 | 10 | 8.9 | 2.5 | 2.1 | 2.5 |
| 6 | 5.9 | 35 | 358 | 130 | 52 | 12 | 13 | 7.0 | 16 | 3.0 | 1.4 | 2.5 |
| 7 | 4.7 | 20 | 99 | 66 | 45 | 9.0 | 12 | 5.3 | 7.0 | 1.8 | 1.3 | 2.3 |
| 8 | 5.6 | 15 | 44 | 46 | 37 | 8.2 | 11 | 4.4 | 8.2 | 1.6 | 1.6 | 2.5 |
| 9 | 5.6 | 12 | 32 | 30 | 25 | 7.4 | 9.4 | 3.8 | 5.9 | 1.4 | 2.5 | 3.8 |
| 10 | 6.6 | 11 | 26 | 23 | 21 | 6.6 | 9.0 | 3.5 | 4.5 | 1.6 | 2.1 | 106 |
| 11 | 6.2 | 15 | 23 | 22 | 19 | 9.8 | 9.0 | 3.5 | 4.0 | 1.9 | 1.8 | 68 |
| 12 | 6.2 | 14 | 20 | 20 | 1550 | 9.4 | 8.6 | 32 | 3.0 | 1.4 | 1.4 | 10 |
| 13 | 6.2 | 11 | 17 | 17 | 445 | 7.7 | 8.2 | 48 | 3.7 | 1.2 | 1.6 | 4.4 |
| 14 | 6.2 | 10 | 16 | 17 | 125 | 6.2 | 7.4 | 9.4 | 2.7 | 1.1 | 1.1 | 3.2 |
| 15 | 5.9 | 10 | 14 | 16 | 71 | 5.3 | 7.8 | 5.0 | 2.7 | 1.1 | 1.2 | 2.7 |
| 16 | 7.4 | 11 | 12 | 13 | 47 | 4.4 | 8.2 | 18 | 3.5 | 28 | 1.4 | 2.5 |
| 17 | 7.0 | 11 | 12 | 12 | 34 | 4.4 | 7.0 | 29 | 3.0 | 4.4 | 3.8 | 2.7 |
| 18 | 6.2 | 11 | 13 | 11 | 26 | 3.8 | 6.2 | 26 | 2.5 | 2.7 | 6.6 | 2.7 |
| 19 | 6.2 | 53 | 13 | 10 | 27 | 3.5 | 5.6 | 13 | 2.3 | 2.1 | 14 | 2.8 |
| 20 | 4.1 | 37 | 13 | 9.5 | 30 | 3.8 | 5.3 | 8.2 | 2.3 | 1.8 | 5.3 | 2.8 |
| 21 | 5.6 | 22 | 12 | 8.0 | 23 | 3.2 | 5.0 | 6.6 | 1.9 | 1.8 | 6.6 | 2.3 |
| 22 | 4.7 | 18 | 18 | 6.6 | 24 | 3.2 | 4.7 | 5.9 | 1.8 | 1.6 | 4.4 | 1.9 |
| 23 | 4.7 | 15 | 20 | 6.6 | 39 | 31 | 4.1 | 21 | 1.8 | 1.4 | 3.8 | 1.8 |
| 24 | 51 | 13 | 13 | 6.6 | 49 | 264 | 4.1 | 23 | 1.8 | 1.4 | 2.8 | 1.9 |
| 25 | 21 | 12 | 12 | 7.0 | 46 | 200 | 5.3 | 12 | 3.2 | 2.5 | 3.8 | 1.9 |
| 26 | 12 | 11 | 12 | 7.0 | 59 | 118 | 5.3 | 8.6 | 2.3 | 6.2 | 7.0 | 1.9 |
| 27 | 11 | 10 | 9.8 | 8.0 | 55 | 40 | 4.7 | 7.4 | 1.8 | 12 | 12 | 155 |
| 28 | 14 | 112 | 9.4 | 9.0 | 37 | 32 | 4.1 | 21 | 1.6 | 6.2 | 6.6 | 30 |
| 29 | 38 | 640 | 9.8 | 9.2 | --- | 26 | 4.1 | 39 | 1.4 | 3.2 | 4.4 | 12 |
| 30 | 17 | 77 | 9.4 | 9.4 | --- | 28 | 3.8 | 13 | 1.4 | 2.5 | 3.2 | 7.0 |
| 31 | 9.4 | --- | 9.0 | 12 | --- | 26 | --- | 76 | --- | 3.5 | 2.8 | --- |
| TOTAL | 414.2 | 1314.8 | 1007.4 | 1020.7 | 4151 | 950.9 | 274.9 | 537.2 | 161.5 | 109.1 | 124.4 | 446.3 |
| MEAN | 13.4 | 43.8 | 32.5 | 32.9 | 148 | 30.7 | 9.16 | 17.3 | 5.38 | 3.52 | 4.01 | 14.9 |
| MAX | 62 | 640 | 358 | 222 | 1550 | 264 | 28 | 76 | 40 | 28 | 14 | 155 |
| MIN | 4.1 | 7.0 | 9.0 | 6.6 | 19 | 3.2 | 3.8 | 3.5 | 1.4 | 1.1 | 1.1 | 1.8 |
| CFSM | .27 | .88 | .65 | .66 | 2.97 | .62 | .18 | .35 | .11 | .07 | .08 | .30 |
| IN. | .31 | .98 | .75 | .76 | 3.09 | .71 | .20 | .40 | .12 | .08 | .09 | .33 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 26913.8 | MEAN | 73.5 | MAX | 2120 | MIN | 3.2 | CFSM | 1.47 | IN. | 20.06 |
| WTR YR 1985 | TOTAL | 10512.4 | MEAN | 28.8 | MAX | 1550 | MIN | 1.1 | CFSM | .58 | IN. | 7.84 |

## 01657020 BULL RUN NEAR MANASSAS PARK, VA

**LOCATION.**--Lat 38°48'12", long 77°26'59", Fairfax County, Hydrologic Unit 02070010, on left bank 34 ft upstream from bridge on State Highway 28, 1.2 mi upstream from Little Rocky Run, 1.5 mi downstream from Cub Run, and 1.5 mi northeast of Manassas.

**DRAINAGE AREA.**--148 $mi^2$.

**PERIOD OF RECORD.**--November 1984 to September 1985.

**GAGE.**--Water-stage recorder. Elevation of gage is 135 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Jan. 17-21 and Feb. 7, 8. Records good except those for periods with ice effect, Jan. 17-21 and Feb. 7, 8, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in June 1972 reached a stage of about 44.8 ft, discharge, 76,000 $ft^3/s$, by slope-area measurement of peak flow.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges during period November 1984 to September 1985 equal to or greater than base discharge of 4,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 2200 | *6,800 | *15.80 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 5.6 $ft^3/s$, Sept. 26, gage height, 2.19 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, NOVEMBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | --- | 146 | 36 | 346 | 100 | 100 | 22 | 121 | 16 | 26 | 16 |
| 2 | | --- | 102 | 48 | 1460 | 90 | 92 | 23 | 56 | 17 | 15 | 14 |
| 3 | | --- | 105 | 111 | 498 | 80 | 73 | 83 | 40 | 23 | 14 | 14 |
| 4 | | --- | 112 | 411 | 256 | 73 | 67 | 70 | 33 | 18 | 15 | 13 |
| 5 | | --- | 96 | 365 | 183 | 77 | 66 | 42 | 37 | 16 | 14 | 13 |
| 6 | | --- | 694 | 322 | 162 | 67 | 61 | 33 | 50 | 16 | 13 | 12 |
| 7 | | --- | 285 | 187 | 130 | 58 | 57 | 30 | 39 | 17 | 12 | 11 |
| 8 | | --- | 160 | 146 | 110 | 56 | 52 | 27 | 43 | 15 | 14 | 10 |
| 9 | | --- | 127 | 105 | 96 | 57 | 49 | 24 | 38 | 14 | 12 | 60 |
| 10 | | --- | 107 | 83 | 79 | 57 | 49 | 23 | 34 | 14 | 15 | 397 |
| 11 | | --- | 99 | 79 | 72 | 57 | 48 | 23 | 29 | 14 | 11 | 400 |
| 12 | | --- | 87 | 71 | 3400 | 55 | 43 | 41 | 30 | 14 | 14 | 52 |
| 13 | | --- | 75 | 66 | 1800 | 49 | 42 | 89 | 24 | 11 | 12 | 28 |
| 14 | | --- | 66 | 63 | 350 | 48 | 42 | 37 | 22 | 14 | 13 | 18 |
| 15 | | --- | 62 | 56 | 241 | 50 | 42 | 30 | 28 | 22 | 13 | 18 |
| 16 | | 21 | 57 | 47 | 203 | 48 | 42 | 51 | 26 | 42 | 14 | 14 |
| 17 | | 20 | 51 | 45 | 148 | 48 | 41 | 84 | 24 | 16 | 14 | 12 |
| 18 | | 23 | 51 | 43 | 119 | 46 | 37 | 80 | 22 | 14 | 34 | 11 |
| 19 | | 107 | 50 | 40 | 119 | 42 | 33 | 52 | 22 | 11 | 44 | 11 |
| 20 | | 104 | 48 | 39 | 125 | 40 | 32 | 41 | 28 | 10 | 18 | 12 |
| 21 | | 53 | 50 | 36 | 109 | 35 | 31 | 36 | 21 | 11 | 29 | 12 |
| 22 | | 40 | 58 | 33 | 100 | 37 | 32 | 33 | 19 | 14 | 22 | 11 |
| 23 | | 34 | 62 | 30 | 123 | 89 | 29 | 67 | 19 | 12 | 17 | 11 |
| 24 | | 28 | 50 | 35 | 144 | 468 | 28 | 61 | 16 | 11 | 16 | 11 |
| 25 | | 28 | 44 | 33 | 140 | 409 | 30 | 50 | 18 | 13 | 23 | 10 |
| 26 | | 27 | 44 | 33 | 185 | 190 | 38 | 40 | 17 | 22 | 30 | 8.4 |
| 27 | | 25 | 39 | 30 | 183 | 132 | 32 | 36 | 15 | 42 | 44 | 312 |
| 28 | | 162 | 38 | 31 | 123 | 109 | 38 | 67 | 16 | 25 | 19 | 87 |
| 29 | | 1500 | 38 | 33 | --- | 92 | 27 | 71 | 16 | 18 | 16 | 48 |
| 30 | | 239 | 37 | 33 | --- | 100 | 23 | 41 | 16 | 15 | 16 | 26 |
| 31 | | --- | 36 | 33 | --- | 96 | --- | 155 | --- | 14 | 17 | --- |
| TOTAL | | --- | 3076 | 2723 | 11004 | 2955 | 1376 | 1562 | 919 | 531 | 586 | 1672.4 |
| MEAN | | --- | 99.2 | 87.8 | 393 | 95.3 | 45.9 | 50.4 | 30.6 | 17.1 | 18.9 | 55.7 |
| MAX | | --- | 694 | 411 | 3400 | 468 | 100 | 155 | 121 | 42 | 44 | 400 |
| MIN | | --- | 36 | 30 | 72 | 35 | 23 | 22 | 15 | 10 | 11 | 8.4 |
| CFSM | | --- | .67 | .59 | 2.66 | .64 | .31 | .34 | .21 | .12 | .13 | .38 |
| IN. | | --- | .77 | .68 | 2.77 | .74 | .35 | .39 | .23 | .13 | .15 | .42 |

## 01658480 QUANTICO CREEK NEAR DUMFRIES, VA

LOCATION.--Lat 38°34'22", long 77°20'51", Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on pyrite mine trail in Prince William Forest Park, 50 ft upstream from South Fork Quantico Creek, and 0.7 mi west of Dumfries.

DRAINAGE AREA.--6.90 mi².

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to September 1985 (discontinued).

GAGE.--Water-stage recorder.

REMARKS.--Estimated daily discharges: Jan. 16-31, Feb. 2, 3, June 19-25, June 28 to Aug. 17, Aug. 20 to Sept. 9, and Sept. 12-26, 29, 30. Records fair except those for periods with ice effect, Jan. 16-31 and Feb. 2, 3, and those for periods of doubtful gage-height record, June 19-25, June 28 to Aug. 17, Aug. 20 to Sept. 9, and Sept. 12-26, 29, 30, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 430 ft³/s, Mar. 29, 1984, gage height, 6.85 ft; no flow at times in 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 221 ft³/s, Feb. 12, gage height, 4.19 ft; minimum daily, 0.10 ft³/s, Sept. 18-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.7 | 1.4 | 8.8 | 3.4 | 9.3 | 6.0 | 7.1 | 1.8 | 7.2 | .60 | 1.0 | .28 |
| 2 | 5.8 | 1.3 | 6.5 | 3.7 | 45 | 5.6 | 6.6 | 1.9 | 2.5 | .66 | .62 | .27 |
| 3 | 2.9 | 1.2 | 6.0 | 5.9 | 20 | 4.9 | 5.8 | 9.3 | 1.3 | .66 | .50 | .26 |
| 4 | 1.7 | 1.2 | 5.5 | 15 | 12 | 4.6 | 5.4 | 5.3 | .98 | .60 | .40 | .26 |
| 5 | 1.4 | 27 | 5.0 | 16 | 8.4 | 4.9 | 5.0 | 2.8 | .95 | .56 | .35 | .25 |
| 6 | 1.4 | 6.2 | 19 | 17 | 7.0 | 4.5 | 4.9 | 2.2 | 1.2 | .60 | .28 | .22 |
| 7 | 1.4 | 3.2 | 13 | 12 | 6.5 | 4.3 | 4.6 | 1.6 | .99 | .56 | .25 | .20 |
| 8 | 1.2 | 2.0 | 8.9 | 9.3 | 6.3 | 4.5 | 4.6 | 1.5 | 1.1 | .50 | .26 | .17 |
| 9 | 1.2 | 1.6 | 7.6 | 8.0 | 14 | 4.6 | 4.3 | 1.5 | 1.2 | .40 | .27 | .50 |
| 10 | 1.2 | 1.5 | 6.2 | 7.0 | 9.3 | 4.4 | 4.3 | 1.4 | 1.1 | .35 | .27 | 1.6 |
| 11 | 1.2 | 1.4 | 5.7 | 6.4 | 3.6 | 4.2 | 4.4 | 1.3 | .91 | .34 | .24 | 3.4 |
| 12 | 1.0 | 1.5 | 5.0 | 6.1 | 98 | 4.4 | 4.5 | 1.3 | .92 | .33 | .23 | .70 |
| 13 | .74 | 1.4 | 4.8 | 4.9 | 34 | 4.4 | 4.3 | 1.4 | 1.0 | .34 | .22 | .54 |
| 14 | .74 | 1.2 | 4.4 | 4.2 | 18 | 4.6 | 4.3 | 1.3 | .91 | .30 | .21 | .40 |
| 15 | .84 | 1.2 | 4.3 | 5.0 | 13 | 4.4 | 4.3 | 1.2 | .87 | .27 | .20 | .25 |
| 16 | .91 | 1.2 | 4.3 | 9.2 | 10 | 4.3 | 4.3 | 1.1 | .92 | .26 | .22 | .15 |
| 17 | .91 | 1.1 | 4.3 | 7.4 | 9.4 | 4.3 | 4.3 | 1.4 | 1.0 | .24 | .50 | .13 |
| 18 | 1.0 | 1.2 | 4.1 | 4.8 | 8.4 | 4.2 | 4.0 | 2.3 | .91 | .21 | 1.6 | .10 |
| 19 | 1.1 | 12 | 3.8 | 4.1 | 7.9 | 4.0 | 4.0 | 1.2 | .85 | .19 | 4.4 | .10 |
| 20 | 1.1 | 9.1 | 3.7 | 3.8 | 7.3 | 4.0 | 3.8 | .91 | .80 | .17 | 1.0 | .10 |
| 21 | 1.2 | 4.5 | 3.8 | 3.5 | 6.8 | 4.0 | 3.5 | .91 | .72 | .16 | .80 | .10 |
| 22 | 1.2 | 3.5 | 4.3 | 3.4 | 6.3 | 4.2 | 3.4 | .78 | .70 | .15 | .70 | .11 |
| 23 | 1.4 | 2.7 | 3.9 | 3.3 | 5.6 | 8.8 | 3.3 | 1.5 | .68 | .14 | .64 | .15 |
| 24 | 1.7 | 2.4 | 3.7 | 3.5 | 5.5 | 20 | 2.9 | 3.2 | .70 | .13 | .50 | .15 |
| 25 | 2.2 | 2.1 | 3.7 | 3.6 | 5.2 | 17 | 3.0 | 5.6 | 1.7 | .25 | .60 | .13 |
| 26 | 1.9 | 1.9 | 3.5 | 3.4 | 7.2 | 10 | 2.9 | 2.7 | 1.2 | .51 | .80 | .15 |
| 27 | 1.7 | 2.4 | 3.4 | 3.3 | 7.8 | 8.5 | 2.5 | 1.3 | .94 | .47 | .74 | 7.4 |
| 28 | 1.8 | 13 | 3.4 | 3.3 | 6.3 | 7.7 | 2.2 | 1.3 | .80 | .43 | .50 | 3.7 |
| 29 | 7.1 | 53 | 3.4 | 3.2 | --- | 7.0 | 2.2 | 7.9 | .70 | .39 | .40 | .90 |
| 30 | 4.1 | 13 | 3.4 | 3.3 | --- | 7.4 | 2.1 | 2.7 | .62 | .35 | .35 | .60 |
| 31 | 2.2 | --- | 3.4 | 6.0 | --- | 6.9 | --- | 7.9 | --- | .40 | .30 | --- |
| TOTAL | 60.94 | 176.4 | 170.8 | 193.0 | 398.1 | 192.6 | 122.8 | 78.50 | 36.37 | 11.52 | 19.35 | 23.27 |
| MEAN | 1.97 | 5.88 | 5.51 | 6.23 | 14.2 | 6.21 | 4.09 | 2.53 | 1.21 | .37 | .62 | .78 |
| MAX | 7.1 | 53 | 19 | 17 | 98 | 20 | 7.1 | 9.3 | 7.2 | .66 | 4.4 | 7.4 |
| MIN | .74 | 1.1 | 3.4 | 3.2 | 3.6 | 4.0 | 2.1 | .78 | .62 | .13 | .20 | .10 |
| CFSM | .29 | .85 | .80 | .90 | 2.06 | .90 | .59 | .37 | .18 | .05 | .09 | .11 |
| IN. | .33 | .95 | .92 | 1.04 | 2.15 | 1.04 | .66 | .42 | .20 | .06 | .10 | .13 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 3767.20 | MEAN | 10.3 | MAX | 238 | MIN | .69 | CFSM | 1.49 | IN. | 20.31 |
| WTR YR 1985 | TOTAL | 1483.65 | MEAN | 4.06 | MAX | 98 | MIN | .10 | CFSM | .59 | IN. | 8.00 |

## 01658480 QUANTICO CREEK NEAR DUMFRIES, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1983 to September 1985 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 23... | 12:45 | 1.3 | 95 | 20.5 | 19 |
| NOV | | | | | |
| 28... | 09:30 | 3.1 | 95 | 5.5 | 3 |
| DEC | | | | | |
| 19... | 10:00 | 3.9 | 98 | 10.0 | 6 |
| JAN | | | | | |
| 29... | 10:23 | 3.0 | 60 | 0.0 | 219 |
| FEB | | | | | |
| 02... | 12:33 | 71 | 75 | 1.0 | 113 |
| 12... | 14:35 | 214 | 70 | 4.0 | -- |
| 13... | 12:15 | 31 | 70 | 4.0 | -- |
| 27... | 09:45 | 7.8 | 68 | 9.5 | -- |
| MAR | | | | | |
| 28... | 09:45 | 7.5 | 73 | 9.5 | 5 |
| APR | | | | | |
| 24... | 11:20 | 2.9 | 75 | 18.0 | 3 |
| MAY | | | | | |
| 29... | 12:40 | 7.6 | 63 | 16.0 | 4 |
| JUN | | | | | |
| 26... | 09:45 | 1.1 | 90 | 20.0 | 5 |

## 01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA

LOCATION.--Lat 38°35'14", long 77°25'44", Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on State Highway 619, 3.4 mi south of Independent Hill, 5.6 mi west of Dumfries, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--7.64 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 238.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 4-21, Nov. 11-13, 17, 18, and Jan. 20-31. Records fair except those for periods of doubtful gage-height record, Oct. 4-21 and Nov. 11-13, 17, 18, and period with ice effect, Jan. 20-31, which are poor.

AVERAGE DISCHARGE.--34 years, 6.95 ft$^3$/s, 12.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft$^3$/s, June 21, 1972, gage height, 11.35 ft; no flow at times in 1954, 1957, 1962-66, 1983, and 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0200 | 235 | 5.53 | Feb. 12 | 1315 | *350 | *6.40 |

No flow July 21-31 and part or all of each day Aug. 6-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.9 | 2.6 | 8.4 | 4.8 | 45 | 10 | 9.6 | 2.4 | 8.1 | .29 | .08 | .14 |
| 2 | 6.7 | 2.1 | 6.1 | 5.8 | 75 | 9.9 | 8.4 | 2.3 | 3.1 | .27 | .18 | .14 |
| 3 | 2.8 | 1.9 | 6.0 | 10 | 28 | 8.9 | 7.5 | 13 | 2.0 | .27 | .16 | .14 |
| 4 | 1.2 | 1.8 | 5.8 | 24 | 15 | 8.2 | 7.0 | 6.0 | 1.7 | .27 | .10 | .14 |
| 5 | .70 | 27 | 5.3 | 26 | 13 | 8.1 | 6.3 | 3.9 | 1.6 | .25 | .06 | .14 |
| 6 | .50 | 6.2 | 28 | 21 | 13 | 7.8 | 5.9 | 3.2 | 2.3 | .21 | .02 | .14 |
| 7 | .42 | 3.9 | 13 | 15 | 13 | 7.4 | 5.7 | 2.7 | 1.9 | .18 | .00 | .13 |
| 8 | .40 | 3.2 | 8.4 | 12 | 9.8 | 7.2 | 5.6 | 2.3 | 1.7 | .16 | .00 | .11 |
| 9 | .38 | 2.7 | 6.5 | 9.5 | 7.8 | 7.1 | 5.6 | 2.1 | 1.8 | .11 | .00 | .11 |
| 10 | .36 | 2.5 | 5.7 | 8.2 | 7.5 | 7.0 | 5.5 | 1.9 | 1.5 | .10 | .00 | .55 |
| 11 | .35 | 2.6 | 5.4 | 7.8 | 7.6 | 6.8 | 5.4 | 1.8 | 1.2 | .12 | .00 | 2.9 |
| 12 | .38 | 2.8 | 4.9 | 7.6 | 140 | 7.0 | 5.4 | 1.7 | 1.1 | .18 | .00 | .77 |
| 13 | .45 | 2.3 | 4.6 | 6.9 | 37 | 6.9 | 5.4 | 1.8 | 1.1 | .21 | .00 | .30 |
| 14 | .56 | 1.9 | 4.4 | 6.8 | 21 | 6.5 | 5.4 | 1.8 | .85 | .15 | .00 | .16 |
| 15 | .70 | 1.7 | 4.1 | 7.0 | 17 | 6.3 | 5.4 | 1.7 | .69 | .12 | .00 | .10 |
| 16 | .80 | 1.7 | 4.1 | 5.6 | 14 | 6.0 | 5.4 | 1.6 | .78 | .12 | .00 | .08 |
| 17 | .90 | 1.9 | 4.1 | 5.8 | 13 | 5.9 | 5.2 | 2.2 | .88 | .12 | .00 | .06 |
| 18 | 1.1 | 2.0 | 4.7 | 6.2 | 12 | 5.9 | 4.9 | 2.3 | .79 | .06 | .04 | .06 |
| 19 | 1.1 | 22 | 5.1 | 6.2 | 11 | 5.5 | 4.7 | 2.2 | .66 | .03 | 5.0 | .05 |
| 20 | 1.0 | 9.3 | 5.1 | 5.9 | 10 | 5.4 | 4.5 | 1.7 | .60 | .01 | .99 | .05 |
| 21 | .90 | 4.6 | 5.3 | 5.6 | 9.8 | 5.4 | 4.3 | 1.4 | .58 | .00 | .67 | .05 |
| 22 | 1.0 | 3.6 | 6.2 | 5.4 | 9.6 | 6.1 | 3.9 | 1.2 | .49 | .00 | .51 | .04 |
| 23 | 1.2 | 3.2 | 6.0 | 5.0 | 9.6 | 18 | 3.6 | 1.6 | .43 | .00 | .32 | .04 |
| 24 | 1.7 | 3.0 | 5.6 | 5.2 | 9.6 | 33 | 3.2 | 4.2 | .66 | .00 | .23 | .05 |
| 25 | 1.7 | 2.9 | 5.5 | 5.2 | 9.4 | 22 | 3.2 | 8.4 | 3.1 | .00 | .28 | .05 |
| 26 | 1.6 | 2.7 | 5.2 | 5.0 | 14 | 13 | 3.2 | 3.6 | 1.2 | .00 | .30 | .05 |
| 27 | 1.6 | 2.4 | 5.1 | 4.7 | 14 | 10 | 3.0 | 2.0 | .66 | .00 | .24 | 10 |
| 28 | 1.5 | 29 | 5.0 | 4.5 | 12 | 9.1 | 2.8 | 6.9 | .42 | .00 | .19 | 2.6 |
| 29 | 14 | 73 | 4.8 | 4.3 | --- | 8.1 | 2.6 | 11 | .32 | .00 | .14 | .73 |
| 30 | 5.8 | 13 | 4.8 | 4.0 | --- | 8.9 | 2.5 | 3.5 | .32 | .00 | .14 | .57 |
| 31 | 3.2 | --- | 4.8 | 3.8 | --- | 8.8 | --- | 20 | --- | .00 | .14 | --- |
| TOTAL | 61.90 | 239.5 | 198.0 | 254.8 | 597.7 | 286.2 | 151.1 | 122.4 | 42.53 | 3.23 | 9.79 | 20.45 |
| MEAN | 2.00 | 7.98 | 6.39 | 8.22 | 21.3 | 9.23 | 5.04 | 3.95 | 1.42 | .10 | .32 | .68 |
| MAX | 14 | 73 | 28 | 26 | 140 | 33 | 9.6 | 20 | 8.1 | .29 | 5.0 | 10 |
| MIN | .35 | 1.7 | 4.1 | 3.8 | 7.5 | 5.4 | 2.5 | 1.2 | .32 | .00 | .00 | .04 |
| CFSM | .26 | 1.04 | .84 | 1.08 | 2.79 | 1.21 | .66 | .52 | .19 | .01 | .04 | .09 |
| IN. | .30 | 1.17 | .96 | 1.24 | 2.91 | 1.39 | .74 | .60 | .21 | .02 | .05 | .10 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 3864.76 | MEAN | 10.6 | MAX | 273 | MIN | .35 | CFSM 1.39 | IN. | 18.82 |
| WTR YR 1985 | TOTAL | 1987.60 | MEAN | 5.45 | MAX | 140 | MIN | .00 | CFSM .71 | IN. | 9.68 |

## 01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1953, 1955-56, 1969, 1973-75, April 1983 to September 1985 (discontinued).

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 23... | 10:05 | 1.2 | 80 | 17.5 | 11 |
| NOV | | | | | |
| 27... | 10:00 | 2.5 | 73 | 4.0 | 8 |
| DEC | | | | | |
| 18... | 10:10 | 4.6 | 80 | 9.5 | 9 |
| JAN | | | | | |
| 30... | 11:10 | 3.9 | 45 | 0.0 | 2 |
| FEB | | | | | |
| 26... | 10:20 | 16 | 40 | 9.0 | 13 |
| MAR | | | | | |
| 27... | 09:35 | 8.9 | 65 | 6.0 | 7 |
| APR | | | | | |
| 24... | 09:15 | 2.9 | 65 | 17.0 | 4 |
| MAY | | | | | |
| 29... | 09:50 | 7.9 | 50 | 16.5 | 53 |
| JUN | | | | | |
| 25... | 09:45 | 3.7 | 55 | 21.0 | 21 |
| AUG | | | | | |
| 27... | 10:10 | 0.23 | 58 | 25.0 | 10 |

## 01658550 SOUTH FORK QUANTICO CREEK AT CAMP 5, NEAR JOPLIN, VA

**LOCATION.**--Lat 38°34'38", long 77°24'36", Prince William County, Hydrologic Unit 02070011, on right bank, 100 ft downstream from footbridge in Happyland Camp No. 5 in Prince William Forest Park, 300 ft downstream from Camp 5 Lake, and 1.6 mi northwest of Joplin.

**DRAINAGE AREA.**--9.62 mi$^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--June 1983 to September 1985 (discontinued).

**GAGE.**--Water-stage recorder.

**REMARKS.**--No estimated daily discharges. Records fair prior to July 1 and poor thereafter.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 527 ft$^3$/s, Mar. 29, 1984, gage height, 4.05 ft; minimum, 0.01 ft$^3$/s, July 25, 1985, gage height, 0.62 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 297 ft$^3$/s, Feb. 12, gage height, 3.24 ft; minimum, 0.01 ft$^3$/s, July 25, gage height, 0.62 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.1 | 2.3 | 12 | 5.6 | 46 | 9.3 | 9.7 | 2.7 | 10 | .89 | .72 | .54 |
| 2 | 7.7 | 2.2 | 9.3 | 6.9 | 87 | 9.0 | 8.1 | 2.6 | 3.8 | .96 | .69 | .54 |
| 3 | 2.9 | 2.1 | 9.9 | 11 | 32 | 8.3 | 7.3 | 16 | 2.8 | .85 | .59 | .54 |
| 4 | 1.5 | 2.2 | 8.9 | 27 | 17 | 8.1 | 6.8 | 6.7 | 2.4 | .78 | .48 | .46 |
| 5 | .98 | 38 | 8.0 | 28 | 13 | 8.9 | 6.3 | 3.9 | 2.5 | .71 | .41 | .41 |
| 6 | .72 | 8.9 | 38 | 24 | 13 | 7.7 | 6.2 | 3.1 | 3.3 | .62 | .31 | .39 |
| 7 | .54 | 5.8 | 19 | 16 | 13 | 7.0 | 5.6 | 2.9 | 2.8 | .57 | .29 | .28 |
| 8 | .51 | 4.4 | 12 | 12 | 9.9 | 7.4 | 5.5 | 2.6 | 2.9 | .39 | .33 | .21 |
| 9 | .48 | 3.9 | 10 | 9.2 | 8.6 | 7.9 | 5.2 | 2.4 | 2.8 | .33 | .30 | .36 |
| 10 | .46 | 3.8 | 9.6 | 8.1 | 8.1 | 7.2 | 5.6 | 2.2 | 2.2 | .38 | .25 | 1.3 |
| 11 | .46 | 4.0 | 8.9 | 8.2 | 8.3 | 7.0 | 5.7 | 2.2 | 2.0 | .40 | .23 | 4.4 |
| 12 | .53 | 4.1 | 8.1 | 7.6 | 139 | 7.5 | 5.7 | 2.1 | 2.1 | .55 | .19 | 1.2 |
| 13 | .69 | 3.6 | 7.7 | 7.2 | 43 | 7.6 | 5.6 | 2.4 | 2.0 | .64 | .17 | .35 |
| 14 | .85 | 3.2 | 7.1 | 7.3 | 22 | 7.0 | 5.5 | 2.5 | 1.8 | .52 | .17 | .21 |
| 15 | .88 | 3.2 | 6.8 | 7.3 | 16 | 6.9 | 5.6 | 2.1 | 1.5 | .45 | .13 | .10 |
| 16 | .97 | 3.5 | 6.6 | 5.9 | 13 | 6.1 | 5.8 | 2.2 | 1.9 | .36 | .13 | .10 |
| 17 | 1.1 | 3.5 | 6.6 | 6.7 | 12 | 6.1 | 5.4 | 3.1 | 2.0 | .23 | .25 | .10 |
| 18 | 1.4 | 3.4 | 6.3 | 7.0 | 11 | 6.3 | 5.1 | 3.1 | 1.8 | .15 | 3.3 | .13 |
| 19 | 1.4 | 29 | 6.1 | 7.0 | 11 | 5.8 | 5.0 | 2.7 | 1.5 | .12 | 7.3 | .13 |
| 20 | 1.4 | 15 | 6.0 | 6.4 | 10 | 5.8 | 4.6 | 2.1 | 1.3 | .09 | 1.8 | .13 |
| 21 | 1.3 | 8.8 | 6.3 | 6.3 | 9.3 | 5.8 | 4.4 | 2.0 | 1.2 | .07 | 1.4 | .10 |
| 22 | 1.6 | 7.0 | 7.5 | 5.8 | 9.2 | 5.9 | 4.0 | 1.8 | 1.2 | .06 | 1.1 | .10 |
| 23 | 2.3 | 6.3 | 6.6 | 5.4 | 9.4 | 12 | 3.6 | 2.7 | 1.2 | .03 | .78 | .13 |
| 24 | 3.0 | 5.8 | 6.1 | 5.7 | 9.4 | 35 | 3.6 | 5.7 | 1.4 | .02 | .58 | .13 |
| 25 | 3.1 | 5.6 | 6.1 | 6.3 | 9.0 | 34 | 3.9 | 9.7 | 3.9 | .22 | .71 | .10 |
| 26 | 2.9 | 5.4 | 5.5 | 6.4 | 14 | 17 | 3.4 | 3.8 | 2.1 | .50 | .87 | .10 |
| 27 | 2.9 | 5.0 | 5.4 | 5.4 | 13 | 12 | 3.1 | 2.6 | 1.4 | .40 | .77 | 11 |
| 28 | 3.0 | 31 | 5.4 | 5.7 | 10 | 10 | 3.0 | 4.7 | 1.2 | .33 | .65 | 3.4 |
| 29 | 13 | 88 | 5.7 | 5.5 | --- | 9.2 | 3.0 | 15 | 1.1 | .25 | .57 | 1.0 |
| 30 | 4.4 | 19 | 5.5 | 5.1 | --- | 10 | 2.8 | 4.3 | .90 | .25 | .54 | .62 |
| 31 | 2.7 | --- | 5.5 | 6.2 | --- | 9.0 | --- | 23 | --- | .42 | .54 | --- |
| TOTAL | 73.77 | 328.0 | 272.5 | 282.2 | 616.2 | 306.8 | 155.1 | 144.9 | 69.00 | 12.54 | 26.55 | 28.56 |
| MEAN | 2.38 | 10.9 | 8.79 | 9.10 | 22.0 | 9.90 | 5.17 | 4.67 | 2.30 | .40 | .86 | .95 |
| MAX | 13 | 88 | 38 | 28 | 139 | 35 | 9.7 | 23 | 10 | .96 | 7.3 | 11 |
| MIN | .46 | 2.1 | 5.4 | 5.1 | 8.1 | 5.8 | 2.8 | 1.8 | .90 | .02 | .13 | .10 |
| CFSM | .25 | 1.13 | .91 | .95 | 2.29 | 1.03 | .54 | .49 | .24 | .04 | .09 | .10 |
| IN. | .29 | 1.27 | 1.05 | 1.09 | 2.39 | 1.19 | .60 | .56 | .27 | .05 | .10 | .11 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 4775.17 | MEAN | 13.0 | MAX | 276 | MIN | .46 | CFSM | 1.35 | IN. | 18.40 |
| WTR YR 1985 | TOTAL | 2316.12 | MEAN | 6.35 | MAX | 139 | MIN | .02 | CFSM | .66 | IN. | 8.97 |

## 01658550 SOUTH FORK QUANTICO CREEK AT CAMP 5, NEAR JOPLIN, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1983 to September 1985 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 23... | 11:25 | 2.2 | 50 | 19.0 | 17 |
| NOV | | | | | |
| 27... | 12:00 | 5.0 | 43 | 5.5 | 15 |
| DEC | | | | | |
| 18... | 12:35 | 5.9 | 45 | 10.0 | 9 |
| JAN | | | | | |
| 30... | 11:40 | 4.8 | 45 | 0.5 | 10 |
| FEB | | | | | |
| 01... | 12:15 | 25 | 46 | 1.0 | 8 |
| 02... | 11:45 | 140 | 52 | 1.0 | 46 |
| 12... | 11:15 | 247 | 43 | 4.0 | 231 |
| 26... | 11:33 | 15 | 37 | 11.0 | 7 |
| MAR | | | | | |
| 13... | 10:50 | 40 | 45 | 2.5 | 42 |
| 27... | 09:35 | 11 | 48 | 8.0 | 7 |
| APR | | | | | |
| 24... | 09:55 | 3.7 | 45 | 18.0 | 4 |
| MAY | | | | | |
| 29... | 11:10 | 11 | 53 | 18.0 | 27 |
| JUN | | | | | |
| 25... | 10:55 | 4.5 | 40 | 23.0 | 8 |

## 01658650 SOUTH FORK QUANTICO CREEK NEAR DUMFRIES, VA

LOCATION.--Lat 38°34'18", long 77°20'57", Prince William County, Hydrologic Unit 02070011, on left bank 50 ft downstream from footbridge in Prince William Forest Park, 500 ft upstream from mouth, and 0.7 mi west of Dumfries.

DRAINAGE AREA.--16.6 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1983 to September 1985 (discontinued).

GAGE.--Water-stage recorder.

REMARKS.--Estimated daily discharges: Jan. 11-31 and Feb. 1-3, 13. Records fair except those for period with ice effect, Jan. 11-31 and Feb. 1-3, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 910 ft$^3$/s, Mar. 29, 1984, gage height, 6.74 ft, from rating curve extended above 600 ft$^3$/s on basis of records for nearby stations; minimum, 0.18 ft$^3$/s, Sept. 11-12, 1983, gage height, 1.54 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 571 ft$^3$/s, Feb. 12, gage height, 4.66 ft; minimum, 0.19 ft$^3$/s, Sept. 17-22, 25-26, gage height, 1.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14 | 3.5 | 19 | 8.6 | 50 | 15 | 16 | 5.8 | 17 | 1.3 | 2.0 | .60 |
| 2 | 13 | 3.0 | 15 | 9.7 | 130 | 15 | 14 | 5.8 | 7.1 | 1.4 | 1.4 | .59 |
| 3 | 6.4 | 2.6 | 15 | 15 | 60 | 13 | 13 | 18 | 4.9 | 1.4 | 1.0 | .59 |
| 4 | 4.2 | 2.6 | 14 | 36 | 28 | 13 | 13 | 11 | 4.5 | 1.3 | .87 | .59 |
| 5 | 3.5 | 105 | 13 | 36 | 22 | 13 | 13 | 7.7 | 4.3 | 1.2 | .69 | .58 |
| 6 | 3.1 | 108 | 48 | 38 | 18 | 12 | 12 | 6.5 | 5.1 | 1.3 | .58 | .50 |
| 7 | 2.8 | 107 | 29 | 25 | 15 | 11 | 11 | 5.9 | 4.3 | 1.2 | .51 | .44 |
| 8 | 2.6 | 6.5 | 21 | 22 | 16 | 12 | 11 | 5.3 | 4.6 | .99 | .58 | .37 |
| 9 | 2.6 | 5.9 | 17 | 17 | 18 | 12 | 11 | 5.0 | 4.4 | .77 | .59 | .54 |
| 10 | 2.5 | 5.4 | 15 | 15 | 17 | 12 | 10 | 4.9 | 3.7 | .76 | .59 | 2.6 |
| 11 | 2.5 | 5.9 | 14 | 14 | 13 | 12 | 10 | 4.5 | 3.1 | .75 | .51 | 5.9 |
| 12 | 2.4 | 5.9 | 13 | 14 | 286 | 13 | 10 | 4.6 | 3.5 | .74 | .51 | 1.2 |
| 13 | 2.6 | 5.1 | 13 | 13 | 96 | 11 | 10 | 4.5 | 3.2 | .75 | .51 | .40 |
| 14 | 2.8 | 4.7 | 12 | 12 | 38 | 11 | 10 | 4.5 | 2.7 | .66 | .46 | .26 |
| 15 | 2.8 | 4.7 | 11 | 11 | 28 | 11 | 10 | 4.0 | 2.5 | .59 | .44 | .22 |
| 16 | 2.6 | 4.7 | 11 | 10 | 24 | 11 | 10 | 3.9 | 3.1 | .58 | .47 | .22 |
| 17 | 2.7 | 4.7 | 11 | 11 | 21 | 11 | 9.7 | 4.6 | 2.9 | .48 | .74 | .19 |
| 18 | 3.4 | 4.9 | 11 | 11 | 19 | 10 | 9.3 | 4.9 | 2.9 | .43 | 5.7 | .19 |
| 19 | 3.4 | 31 | 10 | 9.2 | 18 | 10 | 8.9 | 4.5 | 2.4 | .37 | 9.5 | .19 |
| 20 | 3.2 | 21 | 9.8 | 8.0 | 17 | 10 | 8.6 | 4.1 | 2.0 | .36 | 2.0 | .19 |
| 21 | 3.4 | 11 | 9.8 | 7.9 | 16 | 10 | 8.2 | 3.6 | 1.8 | .31 | 1.2 | .19 |
| 22 | 3.7 | 9.0 | 11 | 7.7 | 15 | 11 | 7.9 | 3.2 | 1.7 | .31 | 1.1 | .20 |
| 23 | 4.0 | 8.2 | 9.8 | 7.4 | 15 | 21 | 7.6 | 4.6 | 1.6 | .26 | 1.1 | .22 |
| 24 | 4.9 | 7.8 | 9.3 | 8.3 | 15 | 47 | 7.4 | 7.6 | 1.6 | .22 | .85 | .22 |
| 25 | 4.0 | 7.3 | 9.2 | 9.3 | 14 | 39 | 7.4 | 13 | 4.4 | .46 | .99 | .20 |
| 26 | 3.6 | 7.0 | 8.6 | 9.6 | 19 | 22 | 7.4 | 6.4 | 2.8 | 1.2 | 1.3 | .21 |
| 27 | 3.4 | 6.6 | 8.6 | 9.0 | 19 | 18 | 6.8 | 4.6 | 1.8 | 1.1 | 1.2 | 14 |
| 28 | 3.4 | 27 | 8.6 | 9.7 | 16 | 17 | 6.5 | 4.5 | 1.5 | .98 | 1.1 | 5.5 |
| 29 | 19 | 151 | 8.7 | 9.4 | --- | 16 | 6.5 | 19 | 1.4 | .86 | .84 | 1.4 |
| 30 | 7.5 | 29 | 8.7 | 9.0 | --- | 16 | 5.9 | 7.8 | 1.3 | .76 | .76 | .73 |
| 31 | 4.6 | --- | 8.6 | 10 | --- | 15 | --- | 23 | --- | .85 | .68 | --- |
| TOTAL | 144.6 | 706.0 | 422.7 | 432.8 | 1063 | 470 | 292.1 | 217.3 | 108.1 | 24.64 | 40.77 | 39.23 |
| MEAN | 4.66 | 23.5 | 13.6 | 14.0 | 38.0 | 15.2 | 9.74 | 7.01 | 3.60 | .79 | 1.32 | 1.31 |
| MAX | 19 | 151 | 48 | 38 | 286 | 47 | 16 | 23 | 17 | 1.4 | 9.5 | 14 |
| MIN | 2.4 | 2.6 | 8.6 | 7.4 | 13 | 10 | 5.9 | 3.2 | 1.3 | .22 | .44 | .19 |
| CFSM | .28 | 1.41 | .82 | .84 | 2.28 | .91 | .59 | .42 | .22 | .05 | .08 | .08 |
| IN. | .32 | 1.58 | .94 | .97 | 2.38 | 1.05 | .65 | .49 | .24 | .06 | .09 | .09 |

CAL YR 1984 TOTAL 8592.0 MEAN 23.5 MAX 760 MIN 2.2 CFSM 1.41 IN. 19.21
WTR YR 1985 TOTAL 3961.24 MEAN 10.9 MAX 286 MIN .19 CFSM .66 IN. 8.86

## POTOMAC RIVER BASIN

## 01658650 SOUTH FORK QUANTICO CREEK NEAR DUMFRIES, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1983 to September 1985 (discontinued).

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 23... | 12:45 | 4.0 | 65 | 20.0 | 5 |
| NOV | | | | | |
| 28... | 11:40 | 6.5 | 63 | 5.0 | 9 |
| DEC | | | | | |
| 19... | 11:50 | 9.6 | 63 | 10.0 | 3 |
| JAN | | | | | |
| 29... | 10:47 | 9.4 | 48 | 0.0 | 3 |
| FEB | | | | | |
| 01... | 14:15 | 47 | 42 | 1.0 | 17 |
| 02... | 13:25 | 176 | 60 | 1.0 | 142 |
| 12... | 15:00 | 550 | 42 | 4.0 | 428 |
| 13... | 13:00 | 73 | 43 | 4.0 | 33 |
| 27... | 10:47 | 21 | 42 | 9.0 | 30 |
| MAR | | | | | |
| 28... | 11:20 | 16 | 52 | 12.0 | 5 |
| APR | | | | | |
| 24... | 12:20 | 7.0 | 50 | 18.0 | 2 |
| MAY | | | | | |
| 30... | 10:50 | 8.0 | 55 | 16.0 | 5 |
| JUN | | | | | |
| 26... | 10:45 | 3.1 | 43 | 20.0 | 7 |

## 01660400 AQUIA CREEK NEAR GARRISONVILLE, VA

**LOCATION.**--Lat 38°29'25", long 77°26'02", Stafford County, Hydrologic Unit 02070011, on right bank at bridge on State Highway 641, 1.1 mi northwest of Garrisonville, and 3.0 mi upstream from Beaverdam Run.

**DRAINAGE AREA.**--34.9 mi².

**PERIOD OF RECORD.**--September 1971 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 120 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Jan. 11-16, 20-28 and Feb. 9. Records good except those for periods with ice effect, Jan. 11-16, 20-28 and Feb. 9, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--14 years, 38.0 ft³/s, 14.79 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 11,600 ft³/s, June 22, 1972, gage height, 16.32 ft, from rating curve extended above 1,600 ft³/s on basis of contracted-opening measurement of peak flow; no flow Sept. 15-17, 1980, Aug. 24-27, 1983.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 5 | 0130 | 870 | 4.31 | Feb. 12 | 1300 | *919 | *4.42 |
| Nov. 28 | 2200 | 800 | 4.15 | | | | |

Minimum daily discharge, 0.04 ft³/s, Sept. 21.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 55 | 12 | 45 | 20 | 152 | 28 | 26 | 7.2 | 54 | 6.6 | .55 | .88 |
| 2 | 38 | 10 | 34 | 23 | 295 | 27 | 24 | 8.2 | 23 | 4.3 | .15 | .51 |
| 3 | 17 | 8.6 | 35 | 56 | 121 | 26 | 21 | 52 | 16 | 3.5 | .12 | .25 |
| 4 | 11 | 14 | 39 | 129 | 69 | 25 | 19 | 30 | 12 | 3.2 | .09 | .61 |
| 5 | 9.6 | 213 | 39 | 112 | 59 | 25 | 19 | 16 | 11 | 3.0 | .06 | .29 |
| 6 | 9.1 | 37 | 128 | 88 | 53 | 23 | 18 | 13 | 13 | 2.7 | .07 | .16 |
| 7 | 8.1 | 21 | 70 | 58 | 51 | 21 | 16 | 11 | 12 | 2.3 | .11 | .12 |
| 8 | 7.9 | 17 | 47 | 45 | 44 | 22 | 17 | 9.8 | 15 | 1.8 | 1.7 | .07 |
| 9 | 8.5 | 17 | 37 | 35 | 42 | 21 | 17 | 8.2 | 14 | 1.4 | 1.1 | 1.2 |
| 10 | 8.0 | 15 | 34 | 32 | 40 | 20 | 16 | 7.5 | 12 | 1.9 | .75 | 5.9 |
| 11 | 7.2 | 16 | 31 | 31 | 36 | 20 | 15 | 7.5 | 9.1 | 3.4 | .41 | 35 |
| 12 | 7.1 | 17 | 27 | 28 | 533 | 25 | 16 | 8.2 | 9.0 | 3.0 | .77 | 5.0 |
| 13 | 8.2 | 17 | 25 | 26 | 161 | 22 | 15 | 8.0 | 8.5 | 2.6 | .65 | 2.0 |
| 14 | 8.2 | 17 | 23 | 25 | 78 | 20 | 15 | 7.3 | 7.1 | 1.8 | .19 | .63 |
| 15 | 8.4 | 17 | 23 | 26 | 58 | 19 | 17 | 6.8 | 6.7 | 1.8 | .17 | .19 |
| 16 | 8.0 | 17 | 23 | 28 | 52 | 18 | 16 | 7.3 | 7.7 | 1.7 | .18 | .18 |
| 17 | 7.3 | 17 | 23 | 26 | 43 | 17 | 15 | 10 | 8.2 | .94 | .14 | .15 |
| 18 | 7.1 | 18 | 22 | 27 | 38 | 18 | 14 | 13 | 9.8 | .21 | 48 | .11 |
| 19 | 6.9 | 99 | 21 | 26 | 37 | 17 | 13 | 11 | 10 | .17 | 47 | .11 |
| 20 | 7.0 | 56 | 21 | 25 | 34 | 16 | 13 | 7.5 | 6.7 | .14 | 14 | .08 |
| 21 | 7.3 | 30 | 22 | 22 | 32 | 16 | 12 | 6.0 | 5.6 | .12 | 7.9 | .04 |
| 22 | 7.4 | 22 | 28 | 21 | 31 | 17 | 11 | 5.1 | 4.7 | .20 | 3.9 | .05 |
| 23 | 8.4 | 19 | 23 | 20 | 32 | 51 | 11 | 8.6 | 4.8 | .22 | 3.0 | .10 |
| 24 | 11 | 18 | 20 | 20 | 30 | 87 | 11 | 24 | 9.4 | .17 | 2.0 | .10 |
| 25 | 12 | 18 | 20 | 21 | 29 | 70 | 11 | 45 | 38 | .71 | 1.9 | .12 |
| 26 | 12 | 18 | 18 | 22 | 42 | 43 | 11 | 19 | 8.4 | 2.1 | 2.4 | .12 |
| 27 | 11 | 18 | 18 | 23 | 40 | 36 | 9.6 | 10 | 5.2 | 1.9 | 2.3 | 67 |
| 28 | 14 | 147 | 19 | 24 | 31 | 30 | 9.9 | 47 | 4.1 | 1.4 | 1.8 | 12 |
| 29 | 113 | 327 | 18 | 26 | --- | 28 | 9.0 | 61 | 3.8 | 1.1 | .82 | 3.7 |
| 30 | 31 | 69 | 18 | 26 | --- | 27 | 8.7 | 24 | 3.1 | 1.3 | .33 | 1.9 |
| 31 | 17 | --- | 19 | 27 | --- | 26 | --- | 76 | --- | 1.1 | 1.2 | --- |
| TOTAL | 491.7 | 1341.6 | 970 | 1118 | 2263 | 861 | 446.2 | 575.2 | 351.9 | 56.78 | 143.76 | 138.57 |
| MEAN | 15.9 | 44.7 | 31.3 | 36.1 | 80.8 | 27.8 | 14.9 | 18.6 | 11.7 | 1.83 | 4.64 | 4.62 |
| MAX | 113 | 327 | 128 | 129 | 533 | 87 | 26 | 76 | 54 | 6.6 | 48 | 67 |
| MIN | 6.9 | 8.6 | 18 | 20 | 29 | 16 | 8.7 | 5.1 | 3.1 | .12 | .06 | .04 |
| CFSM | .46 | 1.28 | .90 | 1.03 | 2.32 | .80 | .43 | .53 | .34 | .05 | .13 | .13 |
| IN. | .52 | 1.43 | 1.03 | 1.19 | 2.41 | .92 | .48 | .61 | .38 | .06 | .15 | .15 |

CAL YR 1984 TOTAL 19382.8 MEAN 53.0 MAX 1230 MIN 3.5 CFSM 1.52 IN. 20.66

WTR YR 1985 TOTAL 8757.71 MEAN 24.0 MAX 533 MIN .04 CFSM .69 IN. 9.33

## 01661800 BUSH MILL STREAM NEAR HEATHSVILLE, VA

**LOCATION.**--Lat 37°52'36", long 76°29'42", Northumberland County, Hydrologic Unit 02080102, on right bank 12 ft upstream from bridge on State Highway 601, 2.2 mi northwest of Bowland, 3.0 mi southwest of Heathsville, and 3.5 mi upstream from mouth.

**DRAINAGE AREA.**--6.82 mi$^2$.

**PERIOD OF RECORD.**--October 1963 to March 1969, October 1969 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 22.22 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1969, 52 ft downstream at datum 0.82 ft higher.

**REMARKS.**--Estimated daily discharges: Nov. 1-4, 7-10, 14-17, 23-26, Dec. 11-13, 16-20, Jan. 17-24, Jan. 26 to Feb. 11, Feb. 14-25, May 21-29, June 6 to July 10, and Aug. 31 to Sept. 21. Records fair except those for periods of doubtful or no gage-height record, Nov. 1-4, 7-10, 14-17, 23-26, Dec. 11-13, 16-20, Jan. 26 to Feb. 11, Feb. 14-25, May 21-29, June 6 to July 10, and Aug. 31 to Sept. 21, and period with ice effect, Jan. 17-24, which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--21 years (water years 1964-68, 1970-85), 7.42 ft$^3$/s, 14.77 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 714 ft$^3$/s, July 30, 1979, gage height, 8.52 ft, from rating curve extended above 130 ft$^3$/s; no flow many days in August and September 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Aug. 20, 1969, reached a stage of 6.13 ft, present datum, from floodmarks, discharge, about 450 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 100 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0700 | 120 | 5.50 | Sept. 27 | 0830 | *294 | *6.52 |

Minimum daily discharge, 0.02 ft$^3$/s, July 20, 21, 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.1 | 3.0 | 5.2 | 3.6 | 28 | 2.9 | 3.5 | 2.2 | 1.3 | .07 | .79 | 1.3 |
| 2 | 3.6 | 2.5 | 5.2 | 3.9 | 14 | 3.6 | 3.0 | 2.2 | 1.1 | .07 | .69 | 1.0 |
| 3 | 2.6 | 2.1 | 7.9 | 9.7 | 6.2 | 3.4 | 3.0 | 5.3 | 1.1 | .08 | .44 | .80 |
| 4 | 2.0 | 2.2 | 5.9 | 14 | 4.5 | 3.4 | 3.0 | 3.7 | 1.1 | .09 | .28 | .62 |
| 5 | 1.6 | 4.7 | 5.8 | 7.3 | 3.8 | 3.4 | 3.0 | 3.1 | 1.6 | .08 | .22 | .50 |
| 6 | 1.4 | 4.5 | 14 | 4.6 | 4.5 | 2.9 | 2.8 | 2.6 | 7.0 | .08 | .16 | .40 |
| 7 | 1.3 | 3.3 | 6.9 | 4.0 | 4.2 | 3.0 | 2.9 | 2.2 | 6.0 | .09 | .12 | .33 |
| 8 | 1.2 | 2.4 | 5.8 | 3.7 | 3.8 | 3.8 | 4.4 | 2.1 | 4.0 | .09 | .06 | .27 |
| 9 | 1.2 | 2.6 | 5.3 | 3.3 | 3.7 | 4.3 | 3.5 | 2.0 | 3.0 | .08 | .11 | .25 |
| 10 | 1.2 | 3.5 | 5.2 | 3.4 | 3.6 | 3.5 | 3.4 | 2.0 | 2.0 | .10 | .08 | .36 |
| 11 | 1.2 | 5.2 | 5.0 | 3.8 | 4.2 | 3.6 | 3.5 | 2.1 | 6.4 | .07 | .06 | .27 |
| 12 | 1.2 | 5.1 | 4.7 | 3.6 | 24 | 4.5 | 3.3 | 2.0 | 5.0 | .05 | .05 | .20 |
| 13 | 1.3 | 4.2 | 4.4 | 3.6 | 6.0 | 3.7 | 3.0 | 1.9 | 3.5 | .16 | .04 | .17 |
| 14 | 1.2 | 3.0 | 4.1 | 3.8 | 4.0 | 3.5 | 2.9 | 1.8 | 2.0 | .35 | .03 | .16 |
| 15 | 1.2 | 2.5 | 4.4 | 3.8 | 3.6 | 3.3 | 3.1 | 1.8 | 1.0 | .10 | .03 | .16 |
| 16 | 1.2 | 2.3 | 4.0 | 2.9 | 3.4 | 3.1 | 3.1 | 1.9 | .80 | .05 | .04 | .15 |
| 17 | 1.1 | 2.0 | 3.7 | 2.9 | 3.3 | 3.3 | 2.6 | 2.9 | .70 | .05 | .10 | .15 |
| 18 | 1.2 | 3.8 | 3.5 | 3.3 | 3.3 | 3.1 | 2.6 | 2.6 | .60 | .03 | 1.3 | .15 |
| 19 | 1.2 | 12 | 3.4 | 3.3 | 3.4 | 3.3 | 3.0 | 2.2 | .50 | .03 | 60 | .15 |
| 20 | 1.2 | 6.4 | 3.2 | 3.0 | 3.4 | 3.5 | 2.9 | 2.0 | .42 | .02 | 6.3 | .14 |
| 21 | 1.2 | 4.8 | 3.2 | 2.7 | 3.4 | 3.4 | 2.6 | 2.5 | .27 | .02 | 16 | .14 |
| 22 | 1.2 | 4.4 | 3.2 | 2.7 | 3.5 | 5.3 | 2.5 | 3.0 | .20 | .03 | 4.9 | 2.7 |
| 23 | 1.3 | 3.5 | 2.8 | 2.8 | 3.4 | 7.6 | 2.3 | 3.5 | .14 | .04 | 3.6 | 3.0 |
| 24 | 10 | 3.0 | 2.8 | 2.7 | 3.7 | 7.6 | 2.6 | 11 | .13 | .02 | 3.1 | 1.2 |
| 25 | 7.0 | 2.7 | 2.8 | 3.0 | 3.8 | 6.0 | 2.8 | 7.0 | .12 | .05 | 5.3 | 1.7 |
| 26 | 5.0 | 2.8 | 2.8 | 2.9 | 6.7 | 4.4 | 2.6 | 2.5 | .11 | .35 | 4.8 | 9.9 |
| 27 | 3.0 | 4.1 | 2.9 | 2.6 | 4.1 | 4.0 | 2.5 | 1.7 | .07 | .25 | 3.6 | 142 |
| 28 | 2.8 | 9.7 | 2.9 | 2.6 | 3.0 | 3.8 | 2.6 | 1.4 | .07 | .43 | 3.0 | 12 |
| 29 | 2.8 | 29 | 2.9 | 2.6 | --- | 3.7 | 2.5 | 1.3 | .06 | .78 | 2.4 | 5.4 |
| 30 | 3.7 | 6.7 | 3.0 | 2.4 | --- | 4.0 | 2.3 | 1.3 | .07 | .97 | 2.2 | 3.5 |
| 31 | 3.3 | --- | 4.0 | 5.0 | --- | 3.6 | --- | 1.3 | --- | .75 | 1.6 | --- |
| TOTAL | 75.5 | 148.0 | 140.9 | 123.5 | 166.5 | 122.5 | 87.8 | 85.1 | 50.36 | 5.43 | 121.40 | 189.07 |
| MEAN | 2.44 | 4.93 | 4.55 | 3.98 | 5.95 | 3.95 | 2.93 | 2.75 | 1.68 | .18 | 3.92 | 6.30 |
| MAX | 10 | 29 | 14 | 14 | 28 | 7.6 | 4.4 | 11 | 7.0 | .97 | 60 | 142 |
| MIN | 1.1 | 2.0 | 2.8 | 2.4 | 3.0 | 2.9 | 2.3 | 1.3 | .06 | .02 | .03 | .14 |
| CFSM | .36 | .72 | .67 | .58 | .87 | .58 | .43 | .40 | .25 | .03 | .57 | .92 |
| IN. | .41 | .81 | .77 | .67 | .91 | .67 | .48 | .46 | .27 | .03 | .66 | 1.03 |

CAL YR 1984 TOTAL 3877.7 MEAN 10.6 MAX 124 MIN 1.0 CFSM 1.55 IN. 21.15
WTR YR 1985 TOTAL 1316.06 MEAN 3.61 MAX 142 MIN .02 CFSM .53 IN. 7.18

## 01661800 BUSH MILL STREAM NEAR HEATHSVILLE, VA

**LOCATION.**--Lat 37°52'36", long 76°29'42", Northumberland County, Hydrologic Unit 02080102, on right bank 12 ft upstream from bridge on State Highway 601, 2.2 mi northwest of Howland, 3.0 mi southwest of Heathsville, and 3.5 mi upstream from mouth.

**DRAINAGE AREA.**--6.82 mi$^2$.

**PERIOD OF RECORD.**--October 1963 to March 1969, October 1969 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 22.22 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1969, 52 ft downstream at datum 0.82 ft higher.

**REMARKS.**--Estimated daily discharges: Nov. 1-4, 7-10, 14-17, 23-26, Dec. 11-13, 16-20, Jan. 17-24, Jan. 26 to Feb. 11, Feb. 14-25, May 21-29, June 6 to July 10, and Aug. 31 to Sept. 21. Records fair except those for periods of doubtful or no gage-height record, Nov. 1-4, 7-10, 14-17, 23-26, Dec. 11-13, 16-20, Jan. 26 to Feb. 11, Feb. 14-25, May 21-29, June 6 to July 10, and Aug. 31 to Sept. 21, and period with ice effect, Jan. 17-24, which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--21 years (water years 1964-68, 1970-85), 7.42 ft$^3$/s, 14.77 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 714 ft$^3$/s, July 30, 1979, gage height, 8.52 ft, from rating curve extended above 130 ft$^3$/s; no flow many days in August and September 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Aug. 20, 1969, reached a stage of 6.13 ft, present datum, from floodmarks, discharge, about 450 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 100 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0700 | 120 | 5.50 | Sept. 27 | 0830 | *294 | *6.52 |

Minimum daily discharge, 0.02 ft$^3$/s, July 20, 21, 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.1 | 3.0 | 5.2 | 3.6 | 28 | 2.9 | 3.5 | 2.2 | 1.3 | .07 | .79 | 1.3 |
| 2 | 3.6 | 2.5 | 5.2 | 3.9 | 14 | 3.6 | 3.0 | 2.2 | 1.1 | .07 | .69 | 1.0 |
| 3 | 2.6 | 2.1 | 7.9 | 9.7 | 6.2 | 3.4 | 3.0 | 5.3 | 1.1 | .08 | .44 | .80 |
| 4 | 2.0 | 2.2 | 5.9 | 14 | 4.5 | 3.4 | 3.0 | 3.7 | 1.1 | .09 | .28 | .62 |
| 5 | 1.6 | 4.7 | 5.8 | 7.3 | 3.8 | 3.4 | 3.0 | 3.1 | 1.6 | .08 | .22 | .50 |
| 6 | 1.4 | 4.5 | 14 | 4.6 | 4.5 | 2.9 | 2.8 | 2.6 | 7.0 | .08 | .16 | .40 |
| 7 | 1.3 | 3.3 | 6.9 | 4.0 | 4.2 | 3.0 | 2.9 | 2.2 | 6.0 | .09 | .12 | .33 |
| 8 | 1.2 | 2.4 | 5.8 | 3.7 | 3.8 | 3.8 | 4.4 | 2.1 | 4.0 | .09 | .06 | .27 |
| 9 | 1.2 | 2.6 | 5.3 | 3.3 | 3.7 | 4.3 | 3.5 | 2.0 | 3.0 | .08 | .11 | .25 |
| 10 | 1.2 | 3.5 | 5.2 | 3.4 | 3.6 | 3.5 | 3.4 | 2.0 | 2.0 | .10 | .08 | .36 |
| 11 | 1.2 | 5.2 | 5.0 | 3.8 | 4.2 | 3.6 | 3.5 | 2.1 | 6.4 | .07 | .06 | .27 |
| 12 | 1.2 | 5.1 | 4.7 | 3.6 | 24 | 4.5 | 3.3 | 2.0 | 5.0 | .05 | .05 | .20 |
| 13 | 1.3 | 4.2 | 4.4 | 3.6 | 6.0 | 3.7 | 3.0 | 1.9 | 3.5 | .16 | .04 | .17 |
| 14 | 1.2 | 3.0 | 4.1 | 3.8 | 4.0 | 3.5 | 2.9 | 1.8 | 2.0 | .35 | .03 | .16 |
| 15 | 1.2 | 2.5 | 4.4 | 3.8 | 3.6 | 3.3 | 3.1 | 1.8 | 1.0 | .10 | .03 | .16 |
| 16 | 1.2 | 2.3 | 4.0 | 2.9 | 3.4 | 3.1 | 3.1 | 1.9 | .80 | .05 | .04 | .15 |
| 17 | 1.1 | 2.0 | 3.7 | 2.9 | 3.3 | 3.3 | 2.6 | 2.9 | .70 | .05 | .10 | .15 |
| 18 | 1.2 | 3.8 | 3.5 | 3.3 | 3.3 | 3.1 | 2.6 | 2.6 | .60 | .03 | 1.3 | .15 |
| 19 | 1.2 | 12 | 3.4 | 3.3 | 3.4 | 3.3 | 3.0 | 2.2 | .50 | .03 | 60 | .15 |
| 20 | 1.2 | 6.4 | 3.2 | 3.0 | 3.4 | 3.5 | 2.9 | 2.0 | .42 | .02 | 6.3 | .14 |
| 21 | 1.2 | 4.8 | 3.2 | 2.7 | 3.4 | 3.4 | 2.6 | 2.5 | .27 | .02 | 16 | .14 |
| 22 | 1.2 | 4.4 | 3.2 | 2.7 | 3.5 | 5.3 | 2.5 | 3.0 | .20 | .03 | 4.9 | 2.7 |
| 23 | 1.3 | 3.5 | 2.8 | 2.8 | 3.4 | 7.6 | 2.3 | 3.5 | .14 | .04 | 3.6 | 3.0 |
| 24 | 10 | 3.0 | 2.8 | 2.7 | 3.7 | 7.6 | 2.6 | 11 | .13 | .02 | 3.1 | 1.2 |
| 25 | 7.0 | 2.7 | 2.8 | 3.0 | 3.8 | 6.0 | 2.8 | 7.0 | .12 | .05 | 5.3 | 1.7 |
| 26 | 5.0 | 2.8 | 2.8 | 2.9 | 6.7 | 4.4 | 2.6 | 2.5 | .11 | .35 | 4.8 | 9.9 |
| 27 | 3.0 | 4.1 | 2.9 | 2.6 | 4.1 | 4.0 | 2.5 | 1.7 | .07 | .25 | 3.6 | 142 |
| 28 | 2.8 | 9.7 | 2.9 | 2.6 | 3.0 | 3.8 | 2.6 | 1.4 | .07 | .43 | 3.0 | 12 |
| 29 | 2.8 | 29 | 2.9 | 2.6 | --- | 3.7 | 2.5 | 1.3 | .06 | .78 | 2.4 | 5.4 |
| 30 | 3.7 | 6.7 | 3.0 | 2.4 | --- | 4.0 | 2.3 | 1.3 | .07 | .97 | 2.2 | 3.5 |
| 31 | 3.3 | --- | 4.0 | 5.0 | --- | 3.6 | --- | 1.3 | --- | .75 | 1.6 | --- |
| TOTAL | 75.5 | 148.0 | 140.9 | 123.5 | 166.5 | 122.5 | 87.8 | 85.1 | 50.36 | 5.43 | 121.40 | 189.07 |
| MEAN | 2.44 | 4.93 | 4.55 | 3.98 | 5.95 | 3.95 | 2.93 | 2.75 | 1.68 | .18 | 3.92 | 6.30 |
| MAX | 10 | 29 | 14 | 14 | 28 | 7.6 | 4.4 | 11 | 7.0 | .97 | 60 | 142 |
| MIN | 1.1 | 2.0 | 2.8 | 2.4 | 3.0 | 2.9 | 2.3 | 1.3 | .06 | .02 | .03 | .14 |
| CFSM | .36 | .72 | .67 | .58 | .87 | .58 | .43 | .40 | .25 | .03 | .57 | .92 |
| IN. | .41 | .81 | .77 | .67 | .91 | .67 | .48 | .46 | .27 | .03 | .66 | 1.03 |

CAL YR 1984 TOTAL 3877.7 MEAN 10.6 MAX 124 MIN 1.0 CFSM 1.55 IN. 21.15
WTR YR 1985 TOTAL 1316.06 MEAN 3.61 MAX 142 MIN .02 CFSM .53 IN. 7.18

## 01662000 RAPPAHANNOCK RIVER NEAR WARRENTON, VA

LOCATION.--Lat 38°41'05", long 77°54'15", Fauquier County, Hydrologic Unit 02080103, on left bank 50 ft downstream from westbound bridge on U.S. Highway 211, 0.9 mi downstream from Carter Run, 6.2 mi southwest of Warrenton, and 15 mi upstream from Hazel River.

DRAINAGE AREA.--195 mi$^2$.

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 312.57 ft above National Geodetic Vertical Datum of 1929. Oct. 8, 1942, to Dec. 17, 1944, nonrecording gage 50 ft upstream at present datum.

REMARKS.--Estimated daily discharges: Jan. 13-31 and Feb. 9. Records good except those for periods with ice effect, Jan. 13-31 and Feb. 9, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 196 ft$^3$/s, 13.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft$^3$/s, Oct. 15, 1942, gage height, 23.5 ft, from floodmark, from rating curve extended above 24,000 ft$^3$/s; minimum, 0.22 ft$^3$/s, Sept. 26, 1985; minimum daily, 0.26 ft$^3$/s, Sept. 26, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,800 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1700 | *4,840 | *13.25 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 0.22 ft$^3$/s, Sept. 26.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 127 | 47 | 187 | 79 | 404 | 165 | 176 | 56 | 251 | 13 | 22 | 3.4 |
| 2 | 124 | 44 | 144 | 99 | 815 | 160 | 155 | 54 | 116 | 15 | 24 | 2.7 |
| 3 | 60 | 39 | 132 | 147 | 375 | 146 | 141 | 81 | 86 | 29 | 14 | 2.3 |
| 4 | 43 | 37 | 114 | 199 | 246 | 140 | 136 | 88 | 71 | 31 | 11 | 1.9 |
| 5 | 36 | 48 | 102 | 200 | 222 | 143 | 129 | 64 | 129 | 20 | 8.2 | 1.5 |
| 6 | 31 | 64 | 235 | 198 | 178 | 127 | 122 | 57 | 155 | 16 | 6.4 | 1.2 |
| 7 | 30 | 50 | 226 | 175 | 163 | 115 | 114 | 54 | 93 | 14 | 5.4 | 1.1 |
| 8 | 29 | 43 | 164 | 156 | 134 | 117 | 109 | 49 | 91 | 13 | 6.0 | .81 |
| 9 | 30 | 39 | 141 | 131 | 105 | 116 | 105 | 45 | 81 | 13 | 5.2 | .90 |
| 10 | 30 | 40 | 126 | 121 | 137 | 108 | 101 | 43 | 66 | 13 | 5.3 | .88 |
| 11 | 29 | 46 | 118 | 120 | 122 | 106 | 101 | 42 | 56 | 14 | 4.9 | .76 |
| 12 | 28 | 43 | 109 | 114 | 2570 | 115 | 100 | 48 | 60 | 14 | 4.0 | .71 |
| 13 | 26 | 37 | 103 | 110 | 1020 | 103 | 96 | 181 | 55 | 14 | 3.2 | .72 |
| 14 | 26 | 32 | 96 | 110 | 504 | 100 | 93 | 88 | 44 | 33 | 2.6 | .53 |
| 15 | 27 | 32 | 92 | 100 | 353 | 96 | 96 | 59 | 40 | 22 | 1.9 | .52 |
| 16 | 26 | 32 | 88 | 83 | 269 | 91 | 107 | 59 | 41 | 44 | 1.7 | .50 |
| 17 | 26 | 32 | 88 | 100 | 231 | 91 | 97 | 161 | 43 | 32 | 1.7 | .51 |
| 18 | 27 | 34 | 85 | 100 | 196 | 87 | 87 | 144 | 37 | 15 | 5.0 | .50 |
| 19 | 28 | 76 | 83 | 90 | 185 | 83 | 85 | 98 | 32 | 10 | 15 | .44 |
| 20 | 43 | 99 | 82 | 70 | 174 | 84 | 82 | 75 | 29 | 8.6 | 22 | .38 |
| 21 | 46 | 67 | 83 | 55 | 159 | 83 | 79 | 61 | 26 | 7.1 | 13 | .33 |
| 22 | 36 | 53 | 100 | 65 | 157 | 85 | 78 | 57 | 24 | 6.1 | 25 | .27 |
| 23 | 37 | 47 | 88 | 70 | 164 | 183 | 74 | 76 | 23 | 5.6 | 14 | .31 |
| 24 | 62 | 46 | 79 | 65 | 176 | 313 | 73 | 137 | 22 | 4.9 | 8.7 | .32 |
| 25 | 56 | 44 | 79 | 75 | 176 | 282 | 110 | 95 | 20 | 4.7 | 9.2 | .30 |
| 26 | 45 | 44 | 72 | 65 | 203 | 207 | 93 | 71 | 18 | 8.5 | 12 | .26 |
| 27 | 40 | 42 | 71 | 58 | 205 | 179 | 73 | 58 | 16 | 30 | 13 | 3.1 |
| 28 | 41 | 154 | 73 | 62 | 177 | 165 | 68 | 55 | 13 | 42 | 12 | 3.5 |
| 29 | 84 | 1010 | 74 | 60 | --- | 154 | 65 | 70 | 13 | 20 | 8.6 | 3.2 |
| 30 | 78 | 310 | 73 | 56 | --- | 168 | 59 | 58 | 13 | 12 | 6.1 | 2.7 |
| 31 | 55 | --- | 72 | 64 | --- | 154 | --- | 236 | --- | 12 | 4.6 | --- |
| TOTAL | 1406 | 2731 | 3379 | 3197 | 9820 | 4266 | 3004 | 2520 | 1764 | 536.5 | 295.7 | 36.55 |
| MEAN | 45.4 | 91.0 | 109 | 103 | 351 | 138 | 100 | 81.3 | 58.8 | 17.3 | 9.54 | 1.22 |
| MAX | 127 | 1010 | 235 | 200 | 2570 | 313 | 176 | 236 | 251 | 44 | 25 | 3.5 |
| MIN | 26 | 32 | 71 | 55 | 105 | 83 | 59 | 42 | 13 | 4.7 | 1.7 | .26 |
| CFSM | .23 | .47 | .56 | .53 | 1.80 | .71 | .51 | .42 | .30 | .09 | .05 | .01 |
| IN. | .27 | .52 | .64 | .61 | 1.87 | .81 | .57 | .48 | .34 | .10 | .06 | .01 |

CAL YR 1984 TOTAL 104634 MEAN 286 MAX 5630 MIN 16 CFSM 1.47 IN. 19.96
WTR YR 1985 TOTAL 32955.75 MEAN 90.3 MAX 2570 MIN .26 CFSM .46 IN. 6.29

## 01662800 BATTLE RUN NEAR LAUREL MILLS, VA

LOCATION.--Lat 38°39'20", long 78°04'27", Rappahannock County, Hydrologic Unit 02080103, on left bank just upstream from bridge on State Highway 729, 0.8 mi upstream from mouth, and 1.0 mi northeast of Laurel Mills.

DRAINAGE AREA.--27.6 mi$^2$.

PERIOD OF RECORD.--April 1958 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72-1: 1971. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 374.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 12, 13, 20, 23, 24 and Feb. 8-10. Records good except those for periods with ice effect, Jan. 12, 13, 20, 23, 24 and Feb. 8-10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--27 years, 26.5 ft$^3$/s, 13.04 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,120 ft$^3$/s, Oct. 9, 1976, gage height, 13.90 ft, from floodmark, from rating curve extended above 2,500 ft$^3$/s on basis of velocity-area study; no flow many days in September 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 310 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|
| Nov. 28 | 2230 | 326 | 4.87 |
| Feb. 12 | 0830 | *1,300 | *8.08 |
| July 13 | 2130 | 613 | 6.01 |

Minimum discharge, 0.23 ft$^3$/s, Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 8.2 | 27 | 16 | 100 | 20 | 22 | 8.5 | 17 | 2.7 | 1.9 | .79 |
| 2 | 13 | 7.6 | 22 | 24 | 99 | 19 | 18 | 8.7 | 11 | 3.1 | 2.0 | .75 |
| 3 | 8.7 | 7.2 | 21 | 26 | 47 | 18 | 16 | 13 | 8.7 | 5.5 | 1.3 | .73 |
| 4 | 7.7 | 8.2 | 18 | 43 | 39 | 18 | 15 | 9.6 | 7.8 | 3.7 | 1.1 | .67 |
| 5 | 7.1 | 11 | 18 | 36 | 30 | 18 | 15 | 8.5 | 26 | 3.7 | .99 | .60 |
| 6 | 6.7 | 9.2 | 39 | 32 | 27 | 16 | 19 | 8.1 | 23 | 2.6 | .96 | .51 |
| 7 | 6.7 | 7.9 | 32 | 29 | 24 | 16 | 16 | 7.7 | 13 | 2.4 | .98 | .50 |
| 8 | 6.8 | 7.6 | 28 | 26 | 23 | 16 | 14 | 7.2 | 13 | 2.0 | 1.3 | .47 |
| 9 | 7.0 | 7.7 | 24 | 22 | 22 | 16 | 14 | 6.9 | 10 | 2.1 | 1.2 | .46 |
| 10 | 6.6 | 7.6 | 22 | 19 | 21 | 15 | 13 | 6.7 | 8.8 | 2.3 | .89 | .64 |
| 11 | 6.3 | 8.1 | 21 | 19 | 24 | 15 | 14 | 6.6 | 7.7 | 2.4 | .67 | .73 |
| 12 | 6.4 | 7.9 | 19 | 19 | 396 | 17 | 13 | 6.4 | 10 | 2.4 | .54 | .74 |
| 13 | 6.3 | 7.5 | 19 | 18 | 87 | 15 | 13 | 11 | 7.0 | 57 | .49 | .61 |
| 14 | 6.2 | 7.9 | 18 | 17 | 54 | 15 | 13 | 7.0 | 6.2 | 30 | .45 | .56 |
| 15 | 6.5 | 8.4 | 18 | 16 | 42 | 14 | 14 | 6.3 | 6.1 | 6.3 | .36 | .54 |
| 16 | 7.1 | 8.6 | 18 | 16 | 35 | 14 | 14 | 7.8 | 6.5 | 4.1 | .35 | .49 |
| 17 | 7.2 | 9.8 | 19 | 13 | 31 | 14 | 13 | 17 | 5.9 | 2.8 | .40 | .47 |
| 18 | 7.3 | 8.2 | 18 | 12 | 28 | 14 | 12 | 9.9 | 5.2 | 2.2 | 7.0 | .52 |
| 19 | 7.4 | 19 | 18 | 12 | 27 | 13 | 12 | 7.8 | 4.9 | 1.9 | 7.0 | .45 |
| 20 | 14 | 13 | 17 | 12 | 24 | 14 | 11 | 6.8 | 4.4 | 1.7 | 2.7 | .43 |
| 21 | 8.5 | 10 | 20 | 11 | 22 | 13 | 11 | 6.0 | 4.1 | 1.4 | 3.0 | .44 |
| 22 | 8.1 | 9.5 | 21 | 11 | 22 | 14 | 11 | 6.0 | 4.0 | 1.3 | 2.0 | .42 |
| 23 | 8.1 | 9.1 | 17 | 12 | 22 | 30 | 11 | 12 | 3.7 | 1.2 | 1.2 | .57 |
| 24 | 12 | 9.1 | 17 | 12 | 22 | 26 | 11 | 12 | 4.3 | .95 | 1.2 | .56 |
| 25 | 8.3 | 8.8 | 17 | 13 | 21 | 23 | 18 | 8.8 | 3.2 | 2.2 | 2.8 | .39 |
| 26 | 7.7 | 8.4 | 15 | 13 | 24 | 20 | 12 | 6.8 | 2.6 | 6.7 | 3.2 | .26 |
| 27 | 7.5 | 8.4 | 16 | 12 | 22 | 19 | 11 | 5.8 | 2.6 | 6.1 | 2.0 | 1.6 |
| 28 | 8.6 | 64 | 16 | 12 | 20 | 18 | 10 | 5.9 | 2.6 | 3.4 | 1.4 | 1.6 |
| 29 | 15 | 93 | 17 | 13 | --- | 18 | 9.5 | 7.9 | 2.5 | 2.1 | 1.1 | 1.0 |
| 30 | 9.1 | 37 | 15 | 15 | --- | 18 | 8.8 | 6.1 | 2.3 | 1.8 | 1.0 | .51 |
| 31 | 8.2 | --- | 16 | 14 | --- | 17 | --- | 37 | --- | 1.6 | .94 | --- |
| TOTAL | 275.0 | 437.9 | 623 | 565 | 1355 | 533 | 404.3 | 285.8 | 234.1 | 169.65 | 52.42 | 19.01 |
| MEAN | 8.87 | 14.6 | 20.1 | 18.2 | 48.4 | 17.2 | 13.5 | 9.22 | 7.80 | 5.47 | 1.69 | .63 |
| MAX | 29 | 93 | 39 | 43 | 396 | 30 | 22 | 37 | 26 | 57 | 7.0 | 1.6 |
| MIN | 6.2 | 7.2 | 15 | 11 | 20 | 13 | 8.8 | 5.8 | 2.3 | .95 | .35 | .26 |
| CFSM | .32 | .53 | .73 | .66 | 1.75 | .62 | .49 | .33 | .28 | .20 | .06 | .02 |
| IN. | .37 | .59 | .84 | .76 | 1.83 | .72 | .54 | .39 | .32 | .23 | .07 | .03 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 14563.9 | MEAN | 39.8 | MAX | 1210 | MIN | 4.4 | CFSM | 1.44 | IN. | 19.63 |
| WTR YR 1985 | TOTAL | 4954.18 | MEAN | 13.6 | MAX | 396 | MIN | .26 | CFSM | .49 | IN. | 6.68 |

## 01663500 HAZEL RIVER AT RIXEYVILLE, VA

**LOCATION.**--Lat 38°35'30", long 77°57'55", Culpeper County, Hydrologic Unit 02080103, on right bank at downstream side of bridge on State Highway 229, 0.4 mi upstream from Waterford Run, 1.1 mi northeast of Rixeyville, 2.8 mi downstream from Thornton River, and 9.1 mi upstream from mouth.

**DRAINAGE AREA.**--287 mi$^2$.

**PERIOD OF RECORD.**--August 1942 to current year.

**REVISED RECORDS.**--WSP 971: 1942. WSP 1622: 1957-58. WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 288.30 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 20-31, Feb. 8-11, and Aug. 30 to Sept. 30. Records good except those for periods with ice effect, Jan. 20-31 and Feb. 8-11, and period of doubtful gage-height record, Aug. 30 to Sept. 30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--43 years, 341 ft$^3$/s, 16.14 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 60,000 ft$^3$/s, Oct. 15, 1942, gage height, 31.8 ft, from rating curve extended above 27,000 ft$^3$/s; minimum, 1.1 ft$^3$/s, Sept. 10-13, 1966, gage height, 1.69 ft.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Apr. 26, 1937, reached a stage of 28.4 ft, from floodmarks, discharge, 43,500 ft$^3$/s, from information by local residents.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 3,300 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1500 | *8,270 | *16.10 | No other peak equal to or greater than base discharge. | | | |

Minimum daily discharge, 4.4 ft$^3$/s, Sept. 21.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 261 | 91 | 431 | 153 | 561 | 288 | 289 | 133 | 583 | 44 | 43 | 25 |
| 2 | 325 | 87 | 327 | 180 | 1190 | 281 | 273 | 128 | 306 | 59 | 42 | 22 |
| 3 | 161 | 82 | 288 | 294 | 659 | 263 | 245 | 173 | 231 | 60 | 40 | 20 |
| 4 | 115 | 80 | 253 | 438 | 431 | 250 | 239 | 204 | 191 | 62 | 33 | 18 |
| 5 | 93 | 101 | 226 | 417 | 378 | 253 | 231 | 160 | 255 | 62 | 25 | 16 |
| 6 | 83 | 134 | 373 | 384 | 312 | 234 | 222 | 139 | 648 | 60 | 21 | 15 |
| 7 | 79 | 105 | 376 | 337 | 282 | 216 | 212 | 129 | 340 | 46 | 18 | 13 |
| 8 | 77 | 92 | 293 | 307 | 230 | 213 | 205 | 119 | 322 | 39 | 19 | 11 |
| 9 | 78 | 87 | 261 | 271 | 210 | 213 | 197 | 113 | 271 | 34 | 21 | 9.8 |
| 10 | 81 | 85 | 243 | 248 | 245 | 204 | 190 | 106 | 219 | 34 | 22 | 11 |
| 11 | 78 | 88 | 232 | 241 | 230 | 197 | 187 | 103 | 185 | 40 | 18 | 9.8 |
| 12 | 74 | 88 | 225 | 224 | 4070 | 212 | 187 | 164 | 198 | 44 | 15 | 8.2 |
| 13 | 70 | 80 | 216 | 219 | 1630 | 203 | 182 | 206 | 176 | 54 | 12 | 7.0 |
| 14 | 67 | 75 | 204 | 220 | 898 | 192 | 178 | 147 | 144 | 172 | 13 | 6.2 |
| 15 | 66 | 73 | 194 | 200 | 659 | 185 | 189 | 110 | 130 | 123 | 16 | 5.8 |
| 16 | 67 | 76 | 190 | 174 | 530 | 176 | 247 | 110 | 126 | 76 | 25 | 5.5 |
| 17 | 70 | 74 | 186 | 208 | 458 | 173 | 211 | 209 | 122 | 57 | 37 | 5.2 |
| 18 | 71 | 76 | 181 | 202 | 392 | 171 | 186 | 193 | 110 | 44 | 69 | 5.0 |
| 19 | 71 | 140 | 175 | 187 | 345 | 164 | 178 | 151 | 100 | 36 | 258 | 4.8 |
| 20 | 72 | 216 | 171 | 150 | 322 | 163 | 173 | 124 | 93 | 31 | 142 | 4.6 |
| 21 | 85 | 145 | 173 | 120 | 295 | 162 | 167 | 106 | 84 | 26 | 108 | 4.4 |
| 22 | 75 | 116 | 217 | 125 | 284 | 162 | 167 | 99 | 78 | 24 | 94 | 4.5 |
| 23 | 87 | 105 | 194 | 145 | 290 | 329 | 163 | 118 | 73 | 21 | 58 | 4.7 |
| 24 | 126 | 101 | 175 | 135 | 303 | 525 | 158 | 230 | 70 | 18 | 41 | 5.1 |
| 25 | 118 | 98 | 173 | 145 | 306 | 413 | 204 | 209 | 69 | 18 | 46 | 6.0 |
| 26 | 95 | 94 | 161 | 135 | 322 | 349 | 207 | 149 | 56 | 58 | 69 | 8.0 |
| 27 | 87 | 91 | 155 | 120 | 328 | 313 | 168 | 120 | 47 | 121 | 70 | 15 |
| 28 | 83 | 169 | 155 | 130 | 301 | 294 | 156 | 104 | 45 | 95 | 56 | 19 |
| 29 | 172 | 1770 | 156 | 125 | --- | 282 | 151 | 125 | 45 | 72 | 42 | 24 |
| 30 | 133 | 647 | 153 | 115 | --- | 286 | 140 | 136 | 44 | 49 | 34 | 23 |
| 31 | 102 | --- | 150 | 130 | --- | 267 | --- | 450 | --- | 39 | 28 | --- |
| TOTAL | 3222 | 5266 | 6907 | 6479 | 16461 | 7633 | 5902 | 4767 | 5361 | 1718 | 1535 | 336.6 |
| MEAN | 104 | 176 | 223 | 209 | 588 | 246 | 197 | 154 | 179 | 55.4 | 49.5 | 11.2 |
| MAX | 325 | 1770 | 431 | 438 | 4070 | 525 | 289 | 450 | 648 | 172 | 258 | 25 |
| MIN | 66 | 73 | 150 | 115 | 210 | 162 | 140 | 99 | 44 | 18 | 12 | 4.4 |
| CFSM | .36 | .61 | .78 | .73 | 2.05 | .86 | .69 | .54 | .62 | .19 | .17 | .04 |
| IN. | .42 | .68 | .90 | .84 | 2.13 | .99 | .76 | .62 | .69 | .22 | .20 | .04 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 178301 | MEAN | 487 | MAX | 10200 | MIN | 47 | CFSM 1.70 | IN. | 23.11 |
| WTR YR 1985 | TOTAL | 65587.6 | MEAN | 180 | MAX | 4070 | MIN | 4.4 | CFSM .63 | IN. | 8.50 |

## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA

LOCATION.--Lat 38°31'50", long 77°48'50", Fauquier County, Hydrologic Unit 02080103, on left bank 80 ft upstream from bridge on alternate U.S. Highway 29, at Remington, 0.3 mi upstream from Tinpot Run, 0.4 mi downstream from Ruffans Run, and 2.5 mi downstream from Hazel River.

DRAINAGE AREA.--620 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252.53 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 21-25. Records good except those for period with ice effect, Jan. 21-25, which are fair. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years, 680 ft$^3$/s, 14.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,000 ft$^3$/s, Oct. 16, 1942, gage height, 30.0 ft, from floodmarks, from rating curve extended above 43,000 ft$^3$/s on basis of slope-area determination of peak flow; minimum, 2.8 ft$^3$/s, Sept. 13, 1966, gage height, 2.31 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1828, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 13 | 0215 | *10,800 | *14.80 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 4.7 ft$^3$/s, Sept. 22; minimum gage height, 2.46 ft, Sept. 16-19.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 317 | 177 | 870 | 263 | 745 | 577 | 527 | 196 | 1230 | 67 | 50 | 33 |
| 2 | 680 | 166 | 637 | 325 | 3390 | 555 | 518 | 190 | 565 | 74 | 62 | 30 |
| 3 | 313 | 158 | 549 | 554 | 1620 | 509 | 444 | 251 | 378 | 87 | 58 | 26 |
| 4 | 202 | 150 | 477 | 928 | 918 | 473 | 427 | 333 | 304 | 103 | 50 | 25 |
| 5 | 164 | 178 | 408 | 935 | 759 | 484 | 405 | 246 | 306 | 99 | 40 | 22 |
| 6 | 144 | 223 | 821 | 892 | 666 | 436 | 382 | 208 | 1040 | 88 | 33 | 20 |
| 7 | 133 | 207 | 921 | 730 | 579 | 390 | 358 | 191 | 562 | 75 | 28 | 18 |
| 8 | 129 | 175 | 655 | 642 | 452 | 384 | 341 | 178 | 476 | 64 | 27 | 15 |
| 9 | 129 | 161 | 549 | 544 | 377 | 385 | 329 | 166 | 434 | 59 | 26 | 15 |
| 10 | 135 | 158 | 481 | 468 | 485 | 363 | 317 | 159 | 333 | 56 | 27 | 13 |
| 11 | 133 | 165 | 447 | 446 | 433 | 350 | 311 | 152 | 280 | 57 | 26 | 15 |
| 12 | 129 | 173 | 420 | 426 | 5730 | 377 | 311 | 149 | 266 | 65 | 24 | 11 |
| 13 | 123 | 156 | 397 | 402 | 6070 | 357 | 300 | 504 | 273 | 75 | 21 | 9.2 |
| 14 | 119 | 145 | 372 | 409 | 1940 | 334 | 292 | 328 | 209 | 145 | 18 | 8.2 |
| 15 | 116 | 139 | 348 | 373 | 1350 | 322 | 294 | 205 | 188 | 157 | 17 | 7.9 |
| 16 | 117 | 138 | 337 | 289 | 1060 | 304 | 371 | 187 | 183 | 94 | 18 | 7.4 |
| 17 | 118 | 139 | 328 | 373 | 907 | 296 | 341 | 443 | 182 | 99 | 17 | 6.9 |
| 18 | 121 | 140 | 322 | 380 | 777 | 292 | 297 | 486 | 170 | 67 | 33 | 6.5 |
| 19 | 121 | 266 | 308 | 333 | 703 | 278 | 280 | 310 | 152 | 49 | 217 | 6.1 |
| 20 | 124 | 413 | 302 | 272 | 660 | 273 | 271 | 239 | 143 | 40 | 173 | 6.3 |
| 21 | 155 | 303 | 299 | 195 | 600 | 273 | 263 | 196 | 131 | 36 | 146 | 5.7 |
| 22 | 144 | 233 | 366 | 220 | 566 | 273 | 257 | 173 | 121 | 33 | 107 | 5.8 |
| 23 | 144 | 204 | 353 | 260 | 580 | 479 | 255 | 197 | 113 | 29 | 92 | 6.3 |
| 24 | 217 | 193 | 307 | 240 | 610 | 1110 | 246 | 383 | 108 | 26 | 62 | 6.1 |
| 25 | 229 | 186 | 297 | 260 | 621 | 901 | 283 | 401 | 103 | 26 | 54 | 7.3 |
| 26 | 182 | 180 | 279 | 240 | 668 | 720 | 349 | 277 | 91 | 32 | 80 | 9.8 |
| 27 | 161 | 173 | 265 | 215 | 729 | 619 | 262 | 211 | 80 | 96 | 83 | 19 |
| 28 | 153 | 304 | 269 | 230 | 630 | 567 | 236 | 179 | 73 | 116 | 70 | 25 |
| 29 | 279 | 3830 | 266 | 220 | --- | 531 | 227 | 195 | 69 | 106 | 56 | 32 |
| 30 | 282 | 1400 | 265 | 210 | --- | 538 | 212 | 225 | 68 | 66 | 45 | 43 |
| 31 | 209 | --- | 259 | 235 | --- | 512 | --- | 543 | --- | 50 | 37 | --- |
| TOTAL | 5722 | 10633 | 13174 | 12509 | 34625 | 14262 | 9706 | 8101 | 8631 | 2236 | 1797 | 461.5 |
| MEAN | 185 | 354 | 425 | 404 | 1237 | 460 | 324 | 261 | 288 | 72.1 | 58.0 | 15.4 |
| MAX | 680 | 3830 | 921 | 935 | 6070 | 1110 | 527 | 543 | 1230 | 157 | 217 | 43 |
| MIN | 116 | 138 | 259 | 195 | 377 | 273 | 212 | 149 | 68 | 26 | 17 | 5.7 |
| CFSM | .30 | .57 | .69 | .65 | 2.00 | .74 | .52 | .42 | .46 | .12 | .09 | .02 |
| IN. | .34 | .64 | .79 | .75 | 2.08 | .86 | .58 | .49 | .52 | .13 | .11 | .03 |

CAL YR 1984 TOTAL 368884 MEAN 1008 MAX 26000 MIN 81 CFSM 1.63 IN. 22.13
WTR YR 1985 TOTAL 121857.5 MEAN 334 MAX 6070 MIN 5.7 CFSM .54 IN. 7.31

## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to September 1956, October 1965 to current year.
WATER TEMPERATURE: May 1951 to September 1956, October 1965 to September 1976, October 1977 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1951 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 150 microsiemens, Sept. 3, 1974; minimum daily, 24 microsiemens, July 6, 1975.
WATER TEMPERATURE: Maximum, 32.5°C, July 19, 1980, July 18, 21, 1981; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 1,870 mg/L, June 13, 1982; minimum daily mean, 1 mg/L on many days during each year.
SEDIMENT LOAD: Maximum daily, 55,600 tons, Sept. 26, 1975; minimum daily, 0.03 ton, Sept. 9, 11, 1983.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE.--Maximum daily, 95 microsiemens, June 20, Aug. 23; minimum daily, 58 microsiemens, Feb. 14.
WATER TEMPERATURE.--Maximum daily, 30.0°C, Aug. 12, 13; minimum daily, 1.0°C on several days in January and February.
SEDIMENT CONCENTRATION: Maximum daily mean, 1,010 mg/L, Feb. 12; minimum daily mean, 1 mg/L on many days in November, December, January, and April.
SEDIMENT LOAD: Maximum daily, 21,100 tons, Feb. 12; minimum daily, 0.05 ton, Sept. 24.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT 09... | 12:00 | 129 | 75 | 75 | 7.0 | 7.3 | 15.5 | 759 | 2 | 8.5 |
| NOV 14... | 12:20 | 144 | 72 | 72 | 7.2 | 7.3 | 7.5 | 762 | 5 | 11.6 |
| JAN 08... | 10:00 | 647 | 68 | 69 | 6.8 | 7.1 | 3.5 | 750 | 8 | 12.4 |
| FEB 05... | 12:30 | 739 | 65 | 66 | 7.1 | 7.0 | 0.0 | -- | 20 | -- |
| MAR 21... | 11:15 | 274 | 62 | 66 | 7.0 | 7.4 | 7.5 | 762 | 10 | 11.6 |
| MAY 09... | 12:15 | 165 | 67 | 69 | 7.2 | 7.3 | 18.0 | 761 | 5 | 8.8 |
| JUN 20... | 10:00 | 144 | 68 | 69 | 7.0 | 7.0 | 20.0 | 752 | 15 | 8.4 |
| AUG 06... | 12:15 | 32 | 85 | 88 | 7.5 | 7.8 | 23.0 | 757 | 5 | 7.3 |
| SEP 18... | 10:45 | 6.7 | 90 | 90 | 7.0 | 6.9 | 17.5 | 762 | 5 | 8.0 |

### 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | HARD- NESS (MG/L AS CACO3) | HARD- NESS NONCAR- BONATE (MG/L AS CACO3) | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY LAB (MG/L AS CACO3) | SULFATE DIS- SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 09... | 86 | 26 | 26 | 6.9 | 2.1 | 4.0 | 1.8 | 25 | 5.2 |
| NOV | | | | | | | | | |
| 14... | 97 | 25 | 25 | 6.7 | 2.1 | 4.1 | 1.6 | 25 | 4.6 |
| JAN | | | | | | | | | |
| 08... | 95 | 23 | 23 | 5.8 | 2.0 | 3.4 | 1.2 | 18 | 6.9 |
| FEB | | | | | | | | | |
| 05... | -- | 22 | 22 | 5.5 | 1.9 | 3.3 | 1.8 | 15 | 7.8 |
| MAR | | | | | | | | | |
| 21... | 97 | 20 | 20 | 5.2 | 1.8 | 3.5 | 1.0 | 19 | 6.0 |
| MAY | | | | | | | | | |
| 09... | 93 | 23 | 23 | 6.0 | 1.9 | 3.5 | 1.4 | 23 | 5.0 |
| JUN | | | | | | | | | |
| 20... | 94 | 23 | 23 | 6.1 | 1.9 | 3.6 | 1.4 | 24 | 4.1 |
| AUG | | | | | | | | | |
| 06... | 86 | 30 | 30 | 7.9 | 2.4 | 4.1 | 2.1 | 27 | 7.4 |
| SEP | | | | | | | | | |
| 18... | 84 | 31 | 31 | 8.0 | 2.6 | 5.0 | 2.5 | 32 | 5.3 |

| DATE | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) | IRON, DIS- SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 09... | 4.8 | <0.1 | 11 | 54 | 51 | <0.01 | 0.22 | <0.01 | 150 |
| NOV | | | | | | | | | |
| 14... | 4.7 | <0.1 | 10 | 48 | 49 | <0.01 | 0.23 | <0.01 | 180 |
| JAN | | | | | | | | | |
| 08... | 4.4 | <0.1 | 12 | 50 | 47 | <0.01 | 0.53 | <0.01 | 140 |
| FEB | | | | | | | | | |
| 05... | 5.5 | <0.1 | 12 | 58 | 47 | <0.01 | 0.73 | 0.03 | 110 |
| MAR | | | | | | | | | |
| 21... | 4.1 | <0.1 | 9.9 | 47 | 43 | <0.01 | 0.35 | <0.01 | 110 |
| MAY | | | | | | | | | |
| 09... | 3.7 | <0.1 | 10 | 49 | 45 | <0.01 | 0.33 | <0.01 | 120 |
| JUN | | | | | | | | | |
| 20... | 3.8 | <0.1 | 7.2 | 48 | 43 | <0.01 | 0.15 | <0.01 | 120 |
| AUG | | | | | | | | | |
| 06... | 4.6 | 0.1 | 5.6 | 49 | 51 | <0.01 | 0.14 | 0.08 | 79 |
| SEP | | | | | | | | | |
| 18... | 5.9 | <0.1 | 3.5 | 53 | 52 | <0.01 | <0.10 | 0.01 | 76 |

## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

### SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 80 | 84 | 65 | 70 | 63 | 64 | 64 | 70 | 70 | 85 | 73 | 92 |
| 2 | 72 | 80 | 65 | 70 | 80 | 62 | 64 | 70 | 75 | 84 | 89 | 93 |
| 3 | 74 | 79 | 68 | 68 | 70 | 62 | 65 | 70 | 75 | 85 | 73 | 93 |
| 4 | 75 | 80 | 68 | 76 | 68 | 60 | 64 | 72 | 75 | 78 | 73 | 92 |
| 5 | 76 | 82 | 68 | 75 | 66 | 62 | 65 | 68 | 75 | 85 | 72 | 92 |
| 6 | 76 | 75 | 79 | 77 | 65 | 60 | 70 | 70 | 75 | 85 | 88 | 94 |
| 7 | 75 | 76 | 73 | 75 | 68 | 64 | 70 | 78 | 75 | 85 | 73 | 92 |
| 8 | 72 | 76 | 74 | 70 | 70 | 62 | 70 | 83 | 75 | 85 | 78 | 92 |
| 9 | 74 | 75 | 73 | 70 | 68 | 63 | 70 | 70 | 72 | 85 | 90 | 77 |
| 10 | 75 | 75 | 74 | 73 | 70 | 63 | 70 | 72 | 72 | 78 | 88 | 78 |
| 11 | 75 | 75 | 72 | 74 | 69 | 60 | 70 | 78 | 72 | --- | 90 | 78 |
| 12 | 75 | 75 | 70 | 74 | 65 | 60 | 70 | 83 | 72 | 92 | 90 | 76 |
| 13 | 75 | 76 | 72 | 73 | 60 | 62 | 70 | 80 | 73 | 93 | 88 | 78 |
| 14 | 76 | 76 | 70 | 73 | 58 | 62 | --- | 70 | 70 | 73 | 90 | 76 |
| 15 | 76 | 75 | 69 | 70 | 68 | 60 | 70 | 68 | 78 | 88 | 84 | 78 |
| 16 | 80 | 72 | 66 | --- | 60 | 62 | 70 | 80 | 72 | 90 | 85 | 80 |
| 17 | 80 | 70 | 68 | 80 | 62 | 62 | 70 | 70 | 75 | 91 | --- | 80 |
| 18 | 79 | 74 | 66 | 80 | 64 | 62 | 70 | 72 | 72 | 88 | 73 | 78 |
| 19 | 80 | 80 | 67 | 72 | 64 | 62 | 70 | 71 | 76 | 88 | 83 | 81 |
| 20 | 85 | 74 | 70 | 67 | 64 | 62 | 72 | 84 | 95 | 90 | 92 | 82 |
| 21 | 85 | 75 | 68 | 78 | 64 | 65 | 72 | 80 | 76 | 88 | 92 | 83 |
| 22 | 85 | 70 | 72 | 80 | 64 | 65 | 70 | 71 | 85 | 88 | 73 | 83 |
| 23 | 84 | 75 | 70 | 65 | 62 | 64 | 72 | 70 | 78 | 87 | 95 | 82 |
| 24 | 82 | 74 | 70 | 79 | 62 | 65 | 70 | 70 | 76 | 88 | 92 | 80 |
| 25 | 80 | 74 | 72 | 79 | 65 | 64 | 72 | 70 | 78 | 89 | 92 | 83 |
| 26 | 80 | 72 | 70 | 68 | 64 | 65 | 70 | 73 | 82 | 90 | 92 | 80 |
| 27 | 80 | 74 | 70 | 70 | 64 | 65 | 72 | 73 | 76 | 90 | 93 | 79 |
| 28 | 80 | 74 | 70 | 71 | 60 | 64 | 70 | 73 | 75 | 74 | 91 | 81 |
| 29 | 82 | 60 | 70 | 70 | --- | 64 | 70 | 73 | 84 | 90 | 91 | 78 |
| 30 | 80 | 65 | 68 | 70 | --- | 64 | 72 | 73 | 85 | 73 | 93 | --- |
| 31 | 80 | --- | 71 | 75 | --- | 65 | --- | 73 | --- | 71 | 91 | --- |
| MEAN | 78 | 75 | 70 | 73 | 65 | 63 | 69 | 73 | 76 | 85 | 86 | 83 |

WTR YR 1985 MEAN 75 MAX 95 MIN 58

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.0 | 17.0 | 9.5 | 9.0 | 1.5 | 7.5 | 10.5 | 22.5 | 20.0 | 26.0 | 24.5 | 26.5 |
| 2 | 13.0 | 16.0 | 6.5 | 8.0 | 1.0 | 7.0 | 11.0 | 19.5 | 19.0 | 26.5 | 20.0 | 26.0 |
| 3 | 15.0 | 12.0 | 7.0 | 7.0 | 1.0 | 6.5 | 12.0 | 17.0 | 22.5 | 27.0 | 21.0 | 25.0 |
| 4 | 16.5 | 10.0 | 6.5 | 6.0 | 2.0 | --- | 13.0 | 17.0 | 22.0 | 27.0 | 23.5 | 24.5 |
| 5 | 17.5 | 13.0 | 5.0 | 5.0 | 1.5 | --- | 15.0 | 17.5 | 22.0 | 27.5 | 25.5 | 25.5 |
| 6 | 18.5 | 13.0 | 4.0 | 6.0 | 1.5 | --- | 16.0 | 19.5 | 22.5 | 27.5 | 26.0 | 24.5 |
| 7 | 15.0 | 12.0 | 5.0 | 5.0 | 2.0 | 8.5 | 11.5 | 19.5 | 19.0 | 26.5 | 27.0 | 26.0 |
| 8 | 15.0 | 11.5 | 4.0 | 5.0 | 2.5 | 9.0 | 12.5 | 19.0 | 21.0 | 26.5 | 27.0 | 26.0 |
| 9 | 16.0 | 10.0 | 4.0 | 5.0 | 3.0 | 9.0 | 12.5 | 18.5 | 23.0 | 27.5 | 27.5 | 25.5 |
| 10 | 16.5 | 11.5 | 6.0 | 4.5 | 2.5 | 8.0 | 11.5 | 19.0 | 22.5 | 27.0 | 28.0 | 26.0 |
| 11 | 16.5 | 11.0 | 5.0 | 3.0 | 3.0 | 8.5 | 12.5 | 17.0 | 22.5 | --- | 29.0 | 24.0 |
| 12 | 17.0 | 10.0 | 6.5 | 2.0 | 4.0 | 9.0 | 12.5 | 18.5 | 23.0 | 27.0 | 30.0 | 24.5 |
| 13 | 16.0 | 9.5 | 7.0 | 1.0 | 3.5 | 8.0 | 12.5 | 22.5 | 23.0 | 27.5 | 30.0 | 24.0 |
| 14 | 16.0 | 9.5 | 9.0 | 3.0 | 4.0 | 7.5 | 13.0 | 21.0 | 21.5 | 26.5 | 29.0 | 25.0 |
| 15 | 17.5 | 9.0 | 9.0 | 3.5 | 2.0 | 8.0 | 15.0 | 18.0 | 23.0 | 29.0 | 29.5 | 25.0 |
| 16 | 17.0 | 6.5 | 9.0 | --- | 3.0 | 8.5 | 12.5 | 19.0 | 23.0 | 29.0 | 29.0 | 24.0 |
| 17 | 18.0 | 5.0 | 11.5 | 1.5 | 2.0 | 8.0 | 14.5 | 19.0 | 23.5 | 27.5 | 29.5 | 24.0 |
| 18 | 16.5 | 5.0 | 12.0 | 1.0 | 2.0 | 8.5 | 18.0 | 17.5 | 23.0 | 28.0 | 24.5 | 22.0 |
| 19 | 17.5 | 6.5 | 11.0 | 3.0 | 1.5 | 9.0 | 15.0 | 17.5 | 24.5 | 28.0 | 24.0 | 21.0 |
| 20 | 18.0 | 6.0 | 9.0 | 1.0 | 3.0 | 7.5 | 15.5 | --- | 25.0 | 28.5 | 24.0 | 21.0 |
| 21 | 18.0 | 5.5 | 8.5 | 1.0 | 3.5 | 8.0 | 16.0 | 18.0 | 24.5 | 29.0 | 25.0 | 21.0 |
| 22 | 21.5 | 4.5 | 7.5 | 1.5 | 4.0 | 8.0 | 16.0 | 19.0 | 25.5 | 28.0 | 25.0 | 20.5 |
| 23 | 19.0 | 5.0 | 7.0 | 1.0 | 4.0 | 7.0 | 16.5 | 18.0 | 24.0 | 27.5 | 26.0 | 21.0 |
| 24 | 16.5 | 5.5 | 6.5 | 1.0 | 6.0 | 7.0 | 17.5 | 17.0 | 26.0 | 27.0 | 26.5 | 20.5 |
| 25 | 17.0 | 5.0 | 6.5 | 1.5 | 9.0 | 7.5 | 20.0 | 18.5 | 25.5 | 28.0 | 27.0 | 21.0 |
| 26 | 19.5 | 5.0 | 4.5 | 1.0 | 8.0 | 8.0 | 20.0 | 18.0 | 24.5 | 27.5 | 27.0 | 20.0 |
| 27 | 19.0 | 5.0 | 7.0 | 1.0 | 11.0 | 12.0 | 21.0 | 19.0 | 26.0 | 26.5 | 27.5 | 20.0 |
| 28 | 18.5 | 5.5 | 8.0 | --- | 7.0 | 12.5 | 20.5 | 19.5 | 26.0 | 27.0 | 27.5 | 21.0 |
| 29 | 21.0 | 9.0 | 12.0 | 1.0 | --- | 12.5 | 20.0 | 20.0 | 25.5 | 27.5 | 26.5 | 16.0 |
| 30 | 19.0 | 7.5 | 10.0 | 1.0 | --- | 12.0 | 21.0 | 21.0 | 26.0 | 27.5 | 26.0 | --- |
| 31 | 18.5 | --- | 6.0 | 1.0 | --- | 9.0 | --- | 20.0 | --- | 28.0 | 26.0 | --- |
| MEAN | 17.0 | 8.5 | 7.5 | 3.0 | 3.5 | 8.5 | 15.0 | 19.0 | 23.5 | 27.5 | 26.5 | 23.0 |

WTR YR 1985 MEAN 15.5 MAX 30.0 MIN 1.0

## 01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

## SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) | MEAN CONCENTRATION (MG/L) | LOADS (T/DAY) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | NOVEMBER | | DECEMBER | | JANUARY | | FEBRUARY | | MARCH | |
| 1 | 19 | 23 | 3 | 1.4 | 19 | 45 | 1 | .71 | 160 | 723 | 14 | 22 |
| 2 | 53 | 104 | 4 | 1.8 | 10 | 17 | 3 | 2.6 | 400 | 3640 | 12 | 18 |
| 3 | 13 | 11 | 2 | .85 | 11 | 16 | 4 | 6.0 | 28 | 122 | 11 | 15 |
| 4 | 4 | 2.2 | 3 | 1.2 | 9 | 12 | 4 | 10 | 32 | 79 | 5 | 6.4 |
| 5 | 5 | 2.2 | 4 | 1.9 | 15 | 17 | 17 | 43 | 13 | 27 | 3 | 3.9 |
| 6 | 4 | 1.6 | 3 | 1.8 | 36 | 84 | 15 | 36 | 16 | 29 | 4 | 4.7 |
| 7 | 6 | 2.2 | 2 | 1.1 | 18 | 45 | 8 | 16 | 6 | 9.4 | 2 | 2.1 |
| 8 | 4 | 1.4 | 2 | .95 | 18 | 32 | 4 | 6.9 | 7 | 8.5 | 4 | 4.1 |
| 9 | 3 | 1.0 | 1 | .43 | 17 | 25 | 6 | 8.8 | 14 | 14 | 3 | 3.1 |
| 10 | 5 | 1.8 | 2 | .85 | 16 | 21 | 6 | 7.6 | 14 | 18 | 3 | 2.9 |
| 11 | 3 | 1.1 | 3 | 1.3 | 15 | 18 | 5 | 6.0 | 12 | 14 | 4 | 3.8 |
| 12 | 4 | 1.4 | 2 | .93 | 3 | 3.4 | 7 | 8.1 | 1010 | 21100 | 3 | 3.1 |
| 13 | 2 | .66 | 3 | 1.3 | 3 | 3.2 | 5 | 5.4 | 405 | 6640 | 6 | 5.8 |
| 14 | 3 | .96 | 3 | 1.2 | 3 | 3.0 | 6 | 6.6 | 126 | 660 | 3 | 2.7 |
| 15 | 5 | 1.6 | 4 | 1.5 | 4 | 3.8 | 5 | 5.0 | 45 | 164 | 2 | 1.7 |
| 16 | 3 | .95 | 1 | .37 | 3 | 2.7 | 6 | 4.7 | 40 | 114 | 2 | 1.6 |
| 17 | 2 | .64 | 4 | 1.5 | 2 | 1.8 | 5 | 5.0 | 42 | 103 | 3 | 2.4 |
| 18 | 4 | 1.3 | 10 | 3.8 | 1 | .87 | 5 | 5.1 | 29 | 61 | 2 | 1.6 |
| 19 | 4 | 1.3 | 16 | 11 | 2 | 1.7 | 8 | 7.2 | 18 | 34 | 3 | 2.3 |
| 20 | 3 | 1.0 | 11 | 12 | 1 | .82 | 7 | 5.1 | 27 | 48 | 4 | 2.9 |
| 21 | 3 | 1.3 | 7 | 5.7 | 3 | 2.4 | 7 | 3.9 | 25 | 40 | 6 | 4.4 |
| 22 | 3 | 1.2 | 12 | 7.5 | 3 | 3.0 | 8 | 6.3 | 25 | 38 | 8 | 5.6 |
| 23 | 7 | 2.7 | 14 | 7.7 | 5 | 4.8 | 4 | 3.2 | 24 | 38 | 56 | 88 |
| 24 | 5 | 2.9 | 12 | 6.3 | 1 | .83 | 9 | 6.8 | 28 | 46 | 75 | 225 |
| 25 | 3 | 1.9 | 9 | 4.5 | 2 | 1.6 | 11 | 8.6 | 31 | 52 | 11 | 27 |
| 26 | 4 | 2.0 | 6 | 2.9 | 1 | .75 | 2 | 1.5 | 31 | 56 | 17 | 33 |
| 27 | 6 | 2.6 | 17 | 7.9 | 1 | .72 | 1 | .66 | 32 | 63 | 12 | 20 |
| 28 | 4 | 1.7 | 30 | 25 | 2 | 1.5 | 1 | .68 | 13 | 22 | 9 | 14 |
| 29 | 9 | 6.8 | 479 | 5680 | 1 | .72 | 4 | 2.7 | --- | --- | 5 | 7.2 |
| 30 | 6 | 4.6 | 80 | 302 | 1 | .72 | 9 | 5.7 | --- | --- | 7 | 10 |
| 31 | 5 | 2.8 | --- | --- | 2 | 1.4 | 6 | 4.0 | --- | --- | 6 | 8.3 |
| TOTAL | --- | 191.81 | --- | 6096.68 | --- | 371.73 | --- | 239.85 | --- | 33962.9 | --- | 552.6 |
| | APRIL | | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | |
| 1 | 6 | 8.5 | 2 | 1.1 | 187 | 724 | 4 | .72 | 5 | .68 | 2 | .18 |
| 2 | 4 | 5.6 | 8 | 4.1 | 17 | 26 | 4 | .80 | 5 | .84 | 3 | .24 |
| 3 | 5 | 6.0 | 11 | 7.5 | 11 | 11 | 7 | 1.6 | 3 | .47 | 3 | .21 |
| 4 | 4 | 4.6 | 10 | 9.0 | 10 | 8.2 | 4 | 1.1 | 2 | .27 | 2 | .14 |
| 5 | 6 | 6.6 | 10 | 6.6 | 5 | 4.1 | 4 | 1.1 | 4 | .43 | 3 | .18 |
| 6 | 7 | 7.2 | 8 | 4.5 | 198 | 591 | 3 | .71 | 4 | .36 | 2 | .11 |
| 7 | 4 | 3.9 | 8 | 4.1 | 10 | 15 | 4 | .81 | 2 | .15 | 3 | .15 |
| 8 | 5 | 4.6 | 11 | 5.3 | 14 | 19 | 2 | .35 | 4 | .29 | 4 | .16 |
| 9 | 8 | 7.1 | 7 | 3.1 | 30 | 35 | 3 | .48 | 12 | .84 | 4 | .16 |
| 10 | 7 | 6.0 | 12 | 5.2 | 8 | 7.2 | 3 | .45 | 17 | 1.2 | 7 | .25 |
| 11 | 5 | 4.2 | 10 | 4.1 | 5 | 3.8 | 3 | .46 | 13 | .91 | 4 | .16 |
| 12 | 8 | 6.7 | 16 | 6.4 | 8 | 5.7 | 3 | .53 | 10 | .65 | 6 | .18 |
| 13 | 4 | 3.2 | 134 | 195 | 6 | 4.4 | 4 | .81 | 7 | .40 | 4 | .10 |
| 14 | 1 | .79 | 9 | 8.0 | 13 | 7.3 | 11 | 5.1 | 5 | .24 | 5 | .11 |
| 15 | 4 | 3.2 | 9 | 5.0 | 10 | 5.1 | 14 | 5.9 | 5 | .23 | 8 | .17 |
| 16 | 5 | 5.0 | 12 | 6.1 | 9 | 4.4 | 7 | 1.8 | 5 | .24 | 8 | .16 |
| 17 | 3 | 2.8 | 18 | 22 | 4 | 2.0 | 8 | 2.1 | 6 | .28 | 7 | .13 |
| 18 | 4 | 3.2 | 4 | 5.2 | 4 | 1.8 | 3 | .54 | 9 | .80 | 6 | .11 |
| 19 | 2 | 1.5 | 4 | 3.3 | 4 | 1.6 | 6 | .79 | 27 | 17 | 7 | .12 |
| 20 | 1 | .73 | 4 | 2.6 | 4 | 1.5 | 6 | .65 | 13 | 6.1 | 5 | .09 |
| 21 | 1 | .71 | 2 | 1.1 | 5 | 1.8 | 5 | .49 | 8 | 3.2 | 6 | .09 |
| 22 | 1 | .69 | 7 | 3.3 | 6 | 2.0 | 11 | .98 | 10 | 2.9 | 8 | .13 |
| 23 | 1 | .69 | 11 | 5.9 | 7 | 2.1 | 6 | .47 | 5 | 1.2 | 5 | .09 |
| 24 | 2 | 1.3 | 30 | 31 | 3 | .87 | 4 | .28 | 6 | 1.0 | 3 | .05 |
| 25 | 3 | 2.3 | 17 | 18 | 3 | .83 | 4 | .28 | 7 | 1.0 | 4 | .08 |
| 26 | 4 | 3.8 | 14 | 10 | 5 | 1.2 | 12 | 1.0 | 5 | 1.1 | 5 | .13 |
| 27 | 3 | 2.1 | 7 | 4.0 | 4 | .86 | 11 | 2.9 | 5 | 1.1 | 5 | .26 |
| 28 | 3 | 1.9 | 8 | 3.9 | 7 | 1.4 | 5 | 1.6 | 2 | .38 | 3 | .20 |
| 29 | 2 | 1.2 | 7 | 3.7 | 5 | .93 | 2 | .57 | 5 | .76 | 7 | .60 |
| 30 | 1 | .57 | 8 | 4.9 | 3 | .55 | 3 | .53 | 3 | .36 | 6 | .65 |
| 31 | --- | --- | 149 | 368 | --- | --- | 4 | .54 | 3 | .30 | --- | --- |
| TOTAL | --- | 106.68 | --- | 762.0 | --- | 1490.64 | --- | 36.44 | --- | 45.68 | --- | 5.39 |

TOTAL LOAD FOR YEAR: 43862.40 TONS.

## 01665000 MOUNTAIN RUN NEAR CULPEPER, VA

LOCATION.--Lat 38°28'50", long 78°03'10", Culpeper County, Hydrologic Unit 02080103, on left bank 30 ft upstream from bridge on State Highway 641, 2.4 mi upstream from Bond Branch, and 3.0 mi west of Culpeper.

DRAINAGE AREA.--15.9 $mi^2$, of which 10.9 $mi^2$ are above flood-detention structures.

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1332: 1950-51. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 389.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20, 21. Records good except those for period with ice effect, Jan. 20, 21, which are fair. Some regulation since 1959 by two reservoirs, combined flood storage, 2,240 acre-ft; 531 acre-ft additional storage used for low-water regulation for municipal supply for town of Culpeper. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--36 years, 16.7 $ft^3/s$, 14.26 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,440 $ft^3/s$, Aug. 18, 1955, from rating curve extended above 910 $ft^3/s$ on basis of slope-area measurement of peak flow; maximum gage height, 11.20 ft, Dec. 4, 1950; minimum discharge, 0.09 $ft^3/s$, Sept. 30, Oct. 1, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 300 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 0800 | *408 | *5.30 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 0.48 $ft^3/s$, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24 | 12 | 25 | 16 | 47 | 12 | 12 | 5.2 | 14 | 1.9 | 2.4 | 1.8 |
| 2 | 19 | 12 | 21 | 23 | 103 | 12 | 11 | 5.4 | 8.7 | 2.4 | 2.3 | 1.8 |
| 3 | 9.7 | 11 | 20 | 26 | 49 | 11 | 11 | 12 | 6.5 | 2.3 | 2.1 | 1.8 |
| 4 | 7.3 | 11 | 18 | 41 | 26 | 11 | 10 | 9.4 | 5.6 | 2.2 | 2.0 | 1.5 |
| 5 | 6.0 | 14 | 18 | 35 | 21 | 12 | 10 | 7.6 | 7.0 | 2.2 | 1.5 | 1.1 |
| 6 | 5.2 | 13 | 41 | 28 | 19 | 11 | 10 | 6.2 | 10 | 2.2 | 1.0 | 1.3 |
| 7 | 4.9 | 12 | 29 | 22 | 18 | 10 | 9.0 | 5.6 | 7.0 | 2.2 | 1.4 | 1.4 |
| 8 | 5.2 | 11 | 24 | 19 | 16 | 10 | 9.4 | 4.9 | 7.9 | 1.9 | 1.7 | 1.6 |
| 9 | 5.2 | 11 | 21 | 16 | 14 | 10 | 9.4 | 4.5 | 6.2 | 2.1 | 1.7 | 1.6 |
| 10 | 5.2 | 11 | 19 | 15 | 13 | 10 | 9.0 | 4.1 | 5.2 | 2.3 | 1.8 | 1.5 |
| 11 | 5.2 | 12 | 19 | 15 | 13 | 10 | 9.0 | 4.1 | 4.7 | 2.3 | 1.8 | 1.5 |
| 12 | 4.9 | 13 | 18 | 14 | 199 | 11 | 9.0 | 4.1 | 5.2 | 2.2 | 1.8 | 1.5 |
| 13 | 5.2 | 11 | 17 | 13 | 114 | 10 | 9.0 | 5.2 | 4.3 | 3.0 | 1.9 | 1.3 |
| 14 | 4.7 | 11 | 16 | 13 | 63 | 11 | 9.0 | 4.7 | 3.4 | 6.1 | 1.5 | 1.3 |
| 15 | 4.7 | 10 | 16 | 12 | 28 | 10 | 10 | 4.1 | 3.1 | 3.1 | 1.6 | 1.4 |
| 16 | 5.2 | 11 | 16 | 11 | 21 | 9.7 | 11 | 5.6 | 3.4 | 2.4 | 1.9 | 1.2 |
| 17 | 5.2 | 10 | 16 | 12 | 19 | 10 | 9.7 | 9.7 | 3.2 | 1.9 | 2.3 | 1.2 |
| 18 | 5.6 | 11 | 15 | 13 | 17 | 9.7 | 8.7 | 8.2 | 3.1 | 1.8 | 14 | 1.1 |
| 19 | 5.8 | 27 | 15 | 12 | 16 | 9.4 | 8.2 | 5.8 | 3.1 | 1.6 | 8.8 | 1.0 |
| 20 | 5.8 | 22 | 15 | 12 | 16 | 9.7 | 7.6 | 4.9 | 3.2 | 1.5 | 4.1 | .94 |
| 21 | 5.8 | 19 | 17 | 11 | 16 | 9.4 | 7.3 | 4.1 | 2.7 | 1.5 | 3.1 | .94 |
| 22 | 7.1 | 15 | 19 | 10 | 15 | 11 | 7.0 | 4.1 | 2.7 | 1.5 | 2.2 | .96 |
| 23 | 12 | 14 | 16 | 10 | 15 | 22 | 6.8 | 7.3 | 2.6 | 1.8 | 1.8 | 1.1 |
| 24 | 20 | 14 | 15 | 11 | 15 | 23 | 6.8 | 9.4 | 2.6 | 1.7 | 2.2 | .93 |
| 25 | 14 | 13 | 15 | 11 | 14 | 19 | 7.9 | 8.7 | 2.4 | 1.9 | 4.3 | .89 |
| 26 | 12 | 12 | 15 | 11 | 15 | 16 | 7.3 | 6.2 | 2.3 | 2.7 | 5.1 | .94 |
| 27 | 12 | 12 | 16 | 11 | 15 | 14 | 6.5 | 5.2 | 2.0 | 2.6 | 3.4 | 1.9 |
| 28 | 12 | 41 | 16 | 11 | 13 | 13 | 6.2 | 4.5 | 2.0 | 2.4 | 2.6 | 1.1 |
| 29 | 20 | 96 | 16 | 11 | --- | 13 | 6.0 | 5.2 | 2.0 | 2.3 | 2.2 | 1.0 |
| 30 | 16 | 39 | 15 | 11 | --- | 12 | 5.6 | 4.9 | 1.9 | 2.1 | 2.1 | .99 |
| 31 | 14 | --- | 16 | 11 | --- | 12 | --- | 19 | --- | 2.2 | 2.0 | --- |
| TOTAL | 288.9 | 531 | 575 | 487 | 950 | 373.9 | 259.4 | 199.9 | 138.0 | 70.3 | 88.6 | 38.59 |
| MEAN | 9.32 | 17.7 | 18.5 | 15.7 | 33.9 | 12.1 | 8.65 | 6.45 | 4.60 | 2.27 | 2.86 | 1.29 |
| MAX | 24 | 96 | 41 | 41 | 199 | 23 | 12 | 19 | 14 | 6.1 | 14 | 1.9 |
| MIN | 4.7 | 10 | 15 | 10 | 13 | 9.4 | 5.6 | 4.1 | 1.9 | 1.5 | 1.0 | .89 |
| CFSM | .59 | 1.11 | 1.16 | .99 | 2.13 | .76 | .54 | .41 | .29 | .14 | .18 | .08 |
| IN. | .68 | 1.24 | 1.35 | 1.14 | 2.22 | .87 | .61 | .47 | .32 | .16 | .21 | .09 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 9617.2 | MEAN | 26.3 | MAX | 347 | MIN | 4.1 | CFSM 1.65 | IN. | 22.50 |
| WTR YR 1985 | TOTAL | 4000.59 | MEAN | 11.0 | MAX | 199 | MIN | .89 | CFSM .69 | IN. | 9.36 |

## 01665500 RAPIDAN RIVER NEAR RUCKERSVILLE, VA

LOCATION.--Lat 38°16'50", long 78°20'25", Madison County, Hydrologic Unit 02080103, on left bank 250 ft downstream from bridge on U.S. Highway 29, 0.2 mi downstream from Elk Run, 1.7 mi upstream from White Run, 3.6 mi northeast of Ruckersville, and at mile 63.5.

DRAINAGE AREA.--114 mi$^2$.

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944-45(M). WSP 1382: 1943(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.44 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-30 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 20-30 and Feb. 9, 10, which are fair. Diversion 0.4 mi upstream from station since 1973 by Rapidan Service Authority for municipal supply of Greene County and town of Stanardsville has averaged less than 0.25 ft$^3$/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 149 ft$^3$/s, 17.75 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,700 ft$^3$/s, Oct. 15, 1942, gage height, 20.8 ft, from floodmark in gage house, from rating curve extended above 12,000 ft$^3$/s on basis of slope-area measurement at gage height 17.78 ft; minimum daily, 0.90 ft$^3$/s, Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 0800 | *3,110 | *6.93 | Aug. 18 | 1730 | 2,160 | 5.62 |
| June 11 | 2030 | 1,410 | 4.46 | | | | |

Minimum daily discharge, 8.9 ft$^3$/s, Aug. 15.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 114 | 42 | 190 | 82 | 244 | 151 | 117 | 56 | 85 | 34 | 23 | 39 |
| 2 | 79 | 40 | 154 | 128 | 431 | 146 | 107 | 56 | 61 | 34 | 25 | 38 |
| 3 | 45 | 36 | 138 | 173 | 243 | 138 | 104 | 87 | 54 | 28 | 17 | 35 |
| 4 | 37 | 38 | 121 | 295 | 172 | 134 | 101 | 69 | 51 | 23 | 13 | 32 |
| 5 | 32 | 54 | 114 | 238 | 148 | 130 | 98 | 59 | 76 | 22 | 11 | 29 |
| 6 | 30 | 54 | 168 | 204 | 139 | 120 | 93 | 56 | 75 | 20 | 11 | 26 |
| 7 | 30 | 44 | 142 | 190 | 127 | 114 | 90 | 52 | 61 | 19 | 11 | 23 |
| 8 | 31 | 41 | 122 | 172 | 116 | 112 | 88 | 51 | 69 | 15 | 20 | 22 |
| 9 | 33 | 40 | 112 | 153 | 94 | 109 | 85 | 48 | 58 | 17 | 16 | 21 |
| 10 | 33 | 38 | 106 | 141 | 100 | 104 | 82 | 47 | 51 | 20 | 12 | 19 |
| 11 | 32 | 40 | 103 | 135 | 95 | 102 | 82 | 47 | 201 | 22 | 12 | 19 |
| 12 | 31 | 35 | 102 | 124 | 1170 | 106 | 79 | 48 | 148 | 65 | 12 | 18 |
| 13 | 30 | 32 | 98 | 116 | 455 | 98 | 77 | 87 | 77 | 43 | 10 | 16 |
| 14 | 28 | 31 | 93 | 111 | 302 | 95 | 77 | 54 | 63 | 56 | 9.1 | 16 |
| 15 | 27 | 31 | 89 | 103 | 239 | 92 | 85 | 47 | 56 | 59 | 8.9 | 16 |
| 16 | 28 | 31 | 87 | 102 | 201 | 87 | 84 | 53 | 54 | 46 | 9.5 | 15 |
| 17 | 29 | 31 | 86 | 104 | 177 | 86 | 76 | 82 | 52 | 22 | 14 | 14 |
| 18 | 30 | 32 | 83 | 96 | 158 | 82 | 71 | 70 | 45 | 17 | 518 | 14 |
| 19 | 30 | 80 | 82 | 91 | 148 | 79 | 70 | 57 | 40 | 15 | 309 | 15 |
| 20 | 31 | 78 | 80 | 84 | 141 | 79 | 68 | 48 | 37 | 15 | 132 | 13 |
| 21 | 29 | 56 | 92 | 65 | 131 | 78 | 67 | 47 | 33 | 15 | 103 | 11 |
| 22 | 33 | 47 | 98 | 69 | 128 | 80 | 65 | 52 | 32 | 15 | 77 | 12 |
| 23 | 89 | 44 | 86 | 78 | 131 | 139 | 62 | 82 | 31 | 14 | 61 | 16 |
| 24 | 78 | 42 | 82 | 72 | 144 | 151 | 61 | 116 | 41 | 13 | 53 | 17 |
| 25 | 51 | 40 | 82 | 66 | 150 | 140 | 89 | 112 | 29 | 20 | 84 | 17 |
| 26 | 44 | 38 | 77 | 64 | 161 | 129 | 71 | 81 | 25 | 71 | 99 | 15 |
| 27 | 41 | 37 | 75 | 69 | 160 | 126 | 64 | 66 | 22 | 40 | 74 | 28 |
| 28 | 38 | 169 | 76 | 66 | 154 | 124 | 66 | 59 | 22 | 26 | 58 | 25 |
| 29 | 93 | 510 | 74 | 64 | --- | 122 | 64 | 54 | 22 | 20 | 50 | 19 |
| 30 | 59 | 256 | 72 | 68 | --- | 120 | 59 | 52 | 21 | 17 | 45 | 19 |
| 31 | 46 | --- | 87 | 82 | --- | 114 | --- | 94 | --- | 16 | 41 | --- |
| TOTAL | 1361 | 2087 | 3171 | 3605 | 6059 | 3487 | 2402 | 1989 | 1692 | 859 | 1938.5 | 619 |
| MEAN | 43.9 | 69.6 | 102 | 116 | 216 | 112 | 80.1 | 64.2 | 56.4 | 27.7 | 62.5 | 20.6 |
| MAX | 114 | 510 | 190 | 295 | 1170 | 151 | 117 | 116 | 201 | 71 | 518 | 39 |
| MIN | 27 | 31 | 72 | 64 | 94 | 78 | 59 | 47 | 21 | 13 | 8.9 | 11 |
| CFSM | .39 | .61 | .89 | 1.02 | 1.89 | .98 | .70 | .56 | .49 | .24 | .55 | .18 |
| IN. | .44 | .68 | 1.03 | 1.18 | 1.98 | 1.14 | .78 | .65 | .55 | .28 | .63 | .20 |

CAL YR 1984 TOTAL 70845 MEAN 194 MAX 4010 MIN 18 CFSM 1.70 IN. 23.12
WTR YR 1985 TOTAL 29269.5 MEAN 80.2 MAX 1170 MIN 8.9 CFSM .70 IN. 9.55

## 01666500 ROBINSON RIVER NEAR LOCUST DALE, VA

LOCATION.--Lat 38°19'30", long 78°05'45", Madison County, Hydrologic Unit 02080103, on right bank 100 ft upstream from bridge on State Highway 614, 1.1 mi upstream from Great Run, 1.7 mi upstream from mouth, 2.0 mi southeast of Locust Dale, and 3.4 mi downstream from Crooked Run.

DRAINAGE AREA.--179 mi$^2$.

PERIOD OF RECORD.--July 1943 to current year. Prior to October 1965, published as Robertson River near Locust Dale.

REVISED RECORDS.--WSP 1171: 1948(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 283.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20-31 and Feb. 8-10. Records good except those for periods with ice effect, Jan. 20-31 and Feb. 8-10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--42 years, 220 ft$^3$/s, 16.69 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft$^3$/s, June 22, 1972, gage height, 20.92 ft, from rating curve extended above 9,100 ft$^3$/s on basis of records for other stations in Rappahannock River basin; minimum, 1.2 ft$^3$/s, Sept. 7, 13, 1954; minimum daily, 1.8 ft$^3$/s, Sept. 13, 27, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.9 ft, from floodmarks, discharge, about 44,000 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,700 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0300 | 1,960 | 8.19 | Aug. 18 | 2030 | 5,580 | 13.97 |
| Feb. 12 | 1300 | *8,110 | *15.63 | | | | |

Minimum discharge, 15 ft$^3$/s, Aug. 16-17, gage height, 1.14 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 240 | 94 | 297 | 131 | 433 | 194 | 183 | 94 | 205 | 55 | 45 | 42 |
| 2 | 212 | 91 | 235 | 205 | 874 | 190 | 166 | 93 | 137 | 61 | 42 | 41 |
| 3 | 125 | 88 | 215 | 268 | 413 | 178 | 158 | 159 | 117 | 54 | 36 | 38 |
| 4 | 102 | 84 | 191 | 456 | 276 | 174 | 154 | 130 | 106 | 48 | 32 | 36 |
| 5 | 90 | 102 | 180 | 380 | 226 | 175 | 149 | 108 | 109 | 47 | 30 | 32 |
| 6 | 84 | 98 | 330 | 333 | 212 | 161 | 142 | 100 | 191 | 44 | 29 | 33 |
| 7 | 80 | 89 | 254 | 281 | 196 | 152 | 135 | 94 | 152 | 42 | 28 | 32 |
| 8 | 79 | 87 | 209 | 247 | 160 | 153 | 135 | 90 | 151 | 37 | 31 | 31 |
| 9 | 80 | 86 | 191 | 215 | 140 | 151 | 132 | 87 | 131 | 37 | 31 | 31 |
| 10 | 76 | 84 | 180 | 198 | 150 | 146 | 126 | 83 | 144 | 40 | 27 | 30 |
| 11 | 74 | 90 | 174 | 194 | 147 | 142 | 127 | 81 | 277 | 42 | 25 | 26 |
| 12 | 72 | 89 | 170 | 181 | 3610 | 155 | 125 | 80 | 205 | 70 | 23 | 26 |
| 13 | 70 | 81 | 167 | 171 | 738 | 143 | 121 | 115 | 127 | 231 | 21 | 25 |
| 14 | 69 | 78 | 159 | 166 | 414 | 145 | 120 | 94 | 105 | 217 | 19 | 21 |
| 15 | 68 | 79 | 154 | 156 | 328 | 140 | 139 | 81 | 95 | 85 | 18 | 22 |
| 16 | 71 | 80 | 150 | 146 | 272 | 134 | 145 | 93 | 93 | 81 | 16 | 23 |
| 17 | 72 | 79 | 148 | 154 | 240 | 135 | 130 | 177 | 90 | 55 | 20 | 22 |
| 18 | 72 | 80 | 144 | 149 | 215 | 129 | 120 | 126 | 80 | 44 | 1260 | 21 |
| 19 | 72 | 166 | 141 | 145 | 203 | 126 | 120 | 98 | 75 | 40 | 755 | 21 |
| 20 | 72 | 152 | 138 | 120 | 193 | 126 | 116 | 87 | 72 | 38 | 191 | 20 |
| 21 | 71 | 119 | 148 | 94 | 180 | 123 | 114 | 82 | 67 | 36 | 133 | 18 |
| 22 | 70 | 108 | 171 | 105 | 178 | 129 | 112 | 84 | 63 | 34 | 94 | 17 |
| 23 | 121 | 105 | 149 | 120 | 183 | 255 | 108 | 140 | 59 | 35 | 72 | 22 |
| 24 | 170 | 102 | 141 | 105 | 217 | 297 | 106 | 202 | 62 | 30 | 60 | 24 |
| 25 | 106 | 98 | 139 | 100 | 220 | 256 | 133 | 205 | 55 | 31 | 106 | 22 |
| 26 | 95 | 96 | 129 | 97 | 229 | 221 | 122 | 130 | 49 | 102 | 138 | 17 |
| 27 | 90 | 94 | 129 | 105 | 220 | 205 | 109 | 107 | 46 | 81 | 88 | 44 |
| 28 | 86 | 239 | 128 | 98 | 202 | 195 | 110 | 95 | 45 | 60 | 70 | 42 |
| 29 | 373 | 1060 | 127 | 95 | --- | 190 | 107 | 102 | 46 | 49 | 59 | 21 |
| 30 | 123 | 408 | 124 | 100 | --- | 189 | 99 | 94 | 44 | 45 | 52 | 18 |
| 31 | 101 | --- | 135 | 105 | --- | 174 | --- | 156 | --- | 44 | 47 | --- |
| TOTAL | 3286 | 4306 | 5347 | 5420 | 11069 | 5283 | 3863 | 3467 | 3198 | 1915 | 3598 | 818 |
| MEAN | 106 | 144 | 172 | 175 | 395 | 170 | 129 | 112 | 107 | 61.8 | 116 | 27.3 |
| MAX | 373 | 1060 | 330 | 456 | 3610 | 297 | 183 | 205 | 277 | 231 | 1260 | 44 |
| MIN | 68 | 78 | 124 | 94 | 140 | 123 | 99 | 80 | 44 | 30 | 16 | 17 |
| CFSM | .59 | .80 | .96 | .98 | 2.21 | .95 | .72 | .63 | .60 | .35 | .65 | .15 |
| IN. | .68 | .89 | 1.11 | 1.13 | 2.30 | 1.10 | .80 | .72 | .66 | .40 | .75 | .17 |

CAL YR 1984 TOTAL 119572 MEAN 327 MAX 5060 MIN 65 CFSM 1.83 IN. 24.85
WTR YR 1985 TOTAL 51570 MEAN 141 MAX 3610 MIN 16 CFSM .79 IN. 10.72

## 01667500 RAPIDAN RIVER NEAR CULPEPER, VA

LOCATION.--Lat 38°21'01", long 77°58'31", Culpeper County, Hydrologic Unit 02080103, on left bank 0.7 mi upstream from Cedar Run and bridge on U.S. Highway 522, 8.5 mi south of Culpeper, and at mile 29.6.

DRAINAGE AREA.--472 mi².

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 741: 1931. WSP 801: 1934(M), 1936(M). WSP 1081: 1943-46. WSP 1171: 1932(M), 1933-35. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-30. Records good except those for period of no gage-height record, Jan. 21-28, and period with ice effect, Jan. 29, 30, which are fair. Diurnal fluctuation at low flow caused by mill at Rapidan. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 527 ft³/s, 15.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,100 ft³/s, Oct. 16, 1942, gage height, 30.3 ft, from floodmark, from rating curve extended above 43,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 2.1 ft³/s, Oct. 4, 5, 11, 1954; minimum daily, 2.2 ft³/s, Oct. 4, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 2015 | *8,430 | *12.09 | Aug. 19 | 0145 | 7,760 | 11.29 |

Minimum discharge, 33 ft³/s, Aug. 17, gage height, 0.39 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 402 | 194 | 715 | 330 | 713 | 506 | 424 | 205 | 491 | 98 | 99 | 143 |
| 2 | 526 | 188 | 558 | 377 | 2380 | 493 | 393 | 203 | 311 | 124 | 93 | 135 |
| 3 | 296 | 179 | 500 | 716 | 1350 | 464 | 363 | 319 | 252 | 124 | 87 | 128 |
| 4 | 220 | 171 | 447 | 1390 | 803 | 444 | 357 | 326 | 227 | 107 | 72 | 120 |
| 5 | 194 | 194 | 408 | 1160 | 617 | 450 | 342 | 243 | 227 | 101 | 64 | 112 |
| 6 | 177 | 207 | 786 | 1020 | 559 | 611 | 327 | 219 | 363 | 97 | 60 | 106 |
| 7 | 170 | 188 | 682 | 814 | 517 | 381 | 307 | 205 | 317 | 88 | 58 | 99 |
| 8 | 169 | 174 | 520 | 702 | 441 | 378 | 306 | 194 | 300 | 79 | 63 | 95 |
| 9 | 169 | 171 | 459 | 598 | 345 | 379 | 296 | 185 | 281 | 73 | 72 | 91 |
| 10 | 167 | 170 | 421 | 539 | 406 | 362 | 287 | 178 | 243 | 80 | 66 | 87 |
| 11 | 161 | 176 | 403 | 513 | 384 | 351 | 287 | 173 | 563 | 90 | 56 | 83 |
| 12 | 158 | 184 | 386 | 479 | 5060 | 373 | 286 | 173 | 1440 | 297 | 51 | 77 |
| 13 | 152 | 164 | 376 | 442 | 2620 | 342 | 277 | 229 | 471 | 390 | 46 | 73 |
| 14 | 151 | 156 | 358 | 426 | 1370 | 330 | 274 | 241 | 303 | 755 | 42 | 67 |
| 15 | 145 | 151 | 345 | 406 | 1020 | 323 | 297 | 182 | 252 | 247 | 38 | 66 |
| 16 | 147 | 155 | 335 | 344 | 837 | 305 | 330 | 187 | 245 | 243 | 35 | 67 |
| 17 | 148 | 155 | 329 | 391 | 725 | 303 | 298 | 474 | 230 | 161 | 34 | 67 |
| 18 | 148 | 156 | 321 | 390 | 637 | 297 | 269 | 369 | 208 | 109 | 1360 | 66 |
| 19 | 148 | 307 | 313 | 371 | 585 | 283 | 261 | 248 | 191 | 92 | 3780 | 64 |
| 20 | 148 | 376 | 308 | 350 | 550 | 282 | 257 | 207 | 172 | 84 | 748 | 62 |
| 21 | 149 | 264 | 314 | 240 | 507 | 279 | 253 | 183 | 157 | 78 | 580 | 60 |
| 22 | 146 | 225 | 383 | 260 | 484 | 285 | 248 | 182 | 145 | 74 | 373 | 59 |
| 23 | 221 | 209 | 341 | 300 | 486 | 538 | 239 | 263 | 138 | 74 | 270 | 61 |
| 24 | 389 | 203 | 313 | 270 | 527 | 777 | 232 | 514 | 137 | 66 | 219 | 65 |
| 25 | 248 | 198 | 308 | 260 | 546 | 645 | 268 | 834 | 137 | 64 | 234 | 64 |
| 26 | 197 | 190 | 290 | 250 | 579 | 532 | 290 | 436 | 114 | 139 | 465 | 59 |
| 27 | 182 | 184 | 281 | 260 | 587 | 479 | 243 | 303 | 101 | 207 | 298 | 81 |
| 28 | 173 | 315 | 281 | 250 | 532 | 453 | 236 | 251 | 97 | 137 | 232 | 116 |
| 29 | 613 | 2230 | 283 | 240 | --- | 436 | 235 | 246 | 97 | 105 | 193 | 80 |
| 30 | 303 | 1040 | 278 | 260 | --- | 446 | 218 | 227 | 96 | 91 | 170 | 66 |
| 31 | 220 | --- | 308 | 275 | --- | 411 | --- | 247 | --- | 90 | 156 | --- |
| TOTAL | 6837 | 8874 | 12350 | 14623 | 26167 | 12738 | 8700 | 8446 | 8306 | 4564 | 10114 | 2517 |
| MEAN | 221 | 296 | 398 | 472 | 935 | 411 | 290 | 272 | 277 | 147 | 326 | 83.9 |
| MAX | 613 | 2230 | 786 | 1390 | 5060 | 777 | 424 | 834 | 1440 | 755 | 3780 | 143 |
| MIN | 145 | 151 | 278 | 240 | 345 | 279 | 218 | 173 | 96 | 64 | 34 | 59 |
| CFSM | .47 | .63 | .84 | 1.00 | 1.98 | .87 | .61 | .58 | .59 | .31 | .69 | .18 |
| IN. | .54 | .70 | .97 | 1.15 | 2.06 | 1.00 | .69 | .67 | .65 | .36 | .80 | .20 |

CAL YR 1984 TOTAL 280258 MEAN 766 MAX 11700 MIN 131 CFSM 1.62 IN. 22.09
WTR YR 1985 TOTAL 124236 MEAN 340 MAX 5060 MIN 34 CFSM .72 IN. 9.79

## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA
(National stream-quality accounting network station)

LOCATION.--Lat 38°19'20", long 77°31'05", Spotsylvania County, Hydrologic Unit 02080104, on right bank 1.6 mi upstream from dam of Virginia Power, 2.2 mi downstream from Motts Run, and 3.8 mi upstream from Fredericksburg.

DRAINAGE AREA.--1,596 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920-21(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.18 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1922, nonrecording gage, and Jan. 15, 1922, to Aug. 2, 1966, water-stage recorder at same site at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Apr. 23 to May 27. Records good except those for period of no gage-height record, Apr. 23 to May 27, which are fair.

AVERAGE DISCHARGE.--78 years, 1,665 $ft^3/s$, 14.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 140,000 $ft^3/s$, Oct. 16, 1942, gage height, 26.9 ft, present datum, from floodmarks, from rating curve extended above 76,000 $ft^3/s$ on basis of flow-over-dam and slope-area measurements at gage heights 26.1 ft and 26.9 ft, present datum; minimum, 5 $ft^3/s$, Oct. 11, 12, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 16,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 13 | 0630 | *25,700 | *10.24 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 72 $ft^3/s$, Aug. 17-18, gage height, 1.13 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 674 | 583 | 2450 | 851 | 1280 | 1480 | 1230 | 560 | 1910 | 233 | 186 | 247 |
| 2 | 1500 | 511 | 1820 | 879 | 9140 | 1420 | 1280 | 545 | 1410 | 231 | 180 | 227 |
| 3 | 1270 | 475 | 1490 | 1460 | 7330 | 1370 | 1170 | 760 | 881 | 235 | 173 | 213 |
| 4 | 738 | 453 | 1380 | 3810 | 3140 | 1280 | 1100 | 870 | 699 | 261 | 183 | 203 |
| 5 | 554 | 711 | 1210 | 3720 | 2260 | 1270 | 1060 | 675 | 622 | 260 | 169 | 192 |
| 6 | 479 | 650 | 2280 | 3530 | 1970 | 1260 | 1010 | 600 | 1120 | 254 | 148 | 181 |
| 7 | 433 | 609 | 2760 | 2480 | 1810 | 1140 | 971 | 545 | 1420 | 242 | 134 | 170 |
| 8 | 411 | 537 | 1920 | 2050 | 1630 | 1080 | 924 | 515 | 971 | 220 | 131 | 161 |
| 9 | 405 | 482 | 1540 | 1730 | 1250 | 1090 | 897 | 495 | 918 | 200 | 124 | 151 |
| 10 | 403 | 456 | 1350 | 1470 | 1170 | 1070 | 865 | 475 | 787 | 189 | 125 | 149 |
| 11 | 405 | 462 | 1250 | 1370 | 1290 | 1020 | 848 | 455 | 713 | 182 | 129 | 145 |
| 12 | 394 | 471 | 1180 | 1320 | 9750 | 1020 | 849 | 445 | 1780 | 198 | 122 | 138 |
| 13 | 380 | 481 | 1120 | 1200 | 18600 | 1070 | 839 | 880 | 1450 | 344 | 110 | 123 |
| 14 | 368 | 441 | 1070 | 1170 | 5120 | 998 | 811 | 780 | 796 | 801 | 104 | 115 |
| 15 | 353 | 415 | 1000 | 1150 | 3290 | 968 | 808 | 560 | 593 | 774 | 95 | 112 |
| 16 | 349 | 400 | 965 | 999 | 2580 | 930 | 862 | 500 | 535 | 457 | 84 | 105 |
| 17 | 350 | 399 | 948 | 955 | 2170 | 896 | 941 | 1100 | 519 | 359 | 75 | 101 |
| 18 | 352 | 403 | 937 | 1100 | 1940 | 888 | 838 | 1000 | 507 | 309 | 145 | 102 |
| 19 | 352 | 619 | 906 | 1060 | 1730 | 860 | 771 | 755 | 472 | 242 | 5200 | 102 |
| 20 | 354 | 1390 | 878 | 1030 | 1680 | 833 | 747 | 630 | 434 | 195 | 1830 | 99 |
| 21 | 352 | 1030 | 873 | 996 | 1560 | 837 | 719 | 540 | 403 | 173 | 903 | 96 |
| 22 | 375 | 757 | 946 | 824 | 1650 | 848 | 699 | 480 | 389 | 159 | 728 | 94 |
| 23 | 397 | 638 | 1080 | 1080 | 1450 | 1010 | 685 | 500 | 365 | 161 | 517 | 94 |
| 24 | 479 | 577 | 950 | 1030 | 1490 | 2330 | 665 | 800 | 348 | 145 | 412 | 93 |
| 25 | 808 | 549 | 878 | 984 | 1540 | 2300 | 700 | 1400 | 341 | 141 | 346 | 92 |
| 26 | 618 | 531 | 852 | 977 | 1600 | 1880 | 830 | 800 | 321 | 148 | 344 | 94 |
| 27 | 507 | 513 | 801 | 900 | 1840 | 1560 | 730 | 700 | 285 | 146 | 549 | 162 |
| 28 | 461 | 580 | 789 | 866 | 1650 | 1420 | 640 | 604 | 252 | 291 | 430 | 145 |
| 29 | 1130 | 9220 | 794 | 883 | --- | 1350 | 620 | 620 | 240 | 300 | 355 | 149 |
| 30 | 1300 | 4630 | 798 | 856 | --- | 1320 | 600 | 630 | 228 | 265 | 309 | 154 |
| 31 | 757 | --- | 807 | 824 | --- | 1310 | --- | 643 | --- | 215 | 280 | --- |
| TOTAL | 17708 | 29972 | 38022 | 43554 | 91730 | 38100 | 25709 | 20850 | 21709 | 8330 | 14620 | 4209 |
| MEAN | 571 | 999 | 1227 | 1405 | 3276 | 1229 | 857 | 673 | 724 | 269 | 472 | 140 |
| MAX | 1500 | 9220 | 2760 | 3810 | 18600 | 2330 | 1280 | 1400 | 1910 | 801 | 5200 | 247 |
| MIN | 349 | 399 | 789 | 824 | 1170 | 833 | 600 | 445 | 228 | 141 | 75 | 92 |
| CFSM | .36 | .63 | .77 | .88 | 2.05 | .77 | .54 | .42 | .45 | .17 | .30 | .09 |
| IN. | .41 | .70 | .89 | 1.02 | 2.14 | .89 | .60 | .49 | .51 | .19 | .34 | .10 |

CAL YR 1984 TOTAL 934119 MEAN 2552 MAX 44600 MIN 348 CFSM 1.60 IN. 21.77
WTR YR 1985 TOTAL 354521 MEAN 971 MAX 18600 MIN 75 CFSM .61 IN. 8.26

### 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1929-30, 1956, 1967-74, 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974.
WATER TEMPERATURE: October 1955 to September 1956, April 1968 to August 1974.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | SPECIFIC CONDUCTANCE LAB (US/CM) | PH (STANDARD UNITS) | PH LAB (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | TURBIDITY (NTU) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 09... | 09:45 | 405 | 78 | 78 | 6.8 | 7.0 | 17.5 | 760 | 1.2 | 8.9 | 93 | -- |
| NOV 26... | 13:00 | 527 | 78 | 76 | 6.8 | 7.0 | 5.0 | 760 | 5.0 | 13.0 | 102 | 19 |
| DEC 11... | 09:30 | 1250 | 71 | 71 | 7.6 | 7.2 | 5.5 | 768 | 2.5 | 13.0 | 102 | -- |
| JAN 28... | 11:00 | 843 | 73 | 72 | 7.1 | 7.2 | 1.0 | 753 | 2.0 | 12.0 | 85 | K16 |
| FEB 25... | 10:45 | 1560 | 73 | 75 | 7.2 | 7.1 | 12.5 | 759 | 4.5 | 10.4 | 98 | 13 |
| MAR 28... | 10:30 | 1430 | 72 | 72 | 7.3 | 7.3 | 14.5 | 762 | 3.5 | 10.0 | 98 | -- |
| APR 23... | 11:00 | 628 | 70 | 71 | 7.3 | 7.1 | 22.5 | 754 | 1.2 | 7.7 | 90 | 23 |
| MAY 22... | 08:00 | 449 | 70 | 73 | 6.8 | 7.2 | 19.0 | 760 | 5.0 | 9.2 | 99 | -- |
| JUN 18... | 12:00 | 508 | 70 | 71 | 7.3 | 7.3 | 24.5 | 745 | 4.0 | 7.3 | 90 | K36 |
| JUL 16... | 09:30 | 478 | 75 | -- | 6.6 | -- | 27.0 | 755 | -- | 8.2 | 104 | -- |
| AUG 28... | 10:00 | 432 | 70 | 73 | 6.5 | 6.7 | 25.0 | 758 | 2.5 | 7.4 | 90 | K16 |
| SEP 23... | 10:00 | 95 | 82 | 79 | 7.3 | 7.3 | 22.0 | 770 | 2.0 | 10.1 | 114 | -- |

| DATE | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) | HARDNESS NONCARBONATE (MG/L AS CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY LAB (MG/L AS CACO3) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 09... | -- | -- | -- | -- | -- | -- | -- | 25 | -- | -- | -- | -- |
| NOV 26... | K9 | 26 | 26 | 6.6 | 2.4 | 4.2 | 2.2 | 23 | 23 | 5.8 | 5.2 | <0.1 |
| DEC 11... | -- | -- | -- | -- | -- | -- | -- | 20 | -- | -- | -- | -- |
| JAN 28... | K11 | 23 | 23 | 5.9 | 2.1 | 4.2 | 1.2 | 20 | 20 | 6.0 | 4.7 | <0.1 |
| FEB 25... | K6 | 24 | 24 | 6.0 | 2.2 | 3.5 | 1.3 | 18 | 18 | 7.6 | 4.8 | <0.1 |
| MAR 28... | -- | -- | -- | -- | -- | -- | -- | 19 | -- | -- | -- | -- |
| APR 23... | K8 | 25 | 25 | 6.4 | 2.2 | 4.0 | 1.4 | 23 | 25 | 4.4 | 3.9 | <0.1 |
| MAY 22... | -- | -- | -- | -- | -- | -- | -- | 21 | -- | -- | -- | -- |
| JUN 18... | 39 | 23 | 23 | 5.4 | 2.2 | 3.5 | 2.2 | 21 | 22 | 9.6 | 4.2 | 0.1 |
| JUL 16... | -- | -- | -- | -- | -- | -- | -- | -- | 16 | -- | -- | -- |
| AUG 28... | 220 | 22 | 22 | 5.2 | 2.2 | 3.4 | 2.4 | 20 | 19 | 5.9 | 4.5 | 0.1 |
| SEP 23... | -- | -- | -- | -- | -- | -- | -- | 27 | -- | -- | -- | -- |

## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | PHOS- PHORUS, DIS- SOLVED (MG/L AS P) | PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) | ALUM- INUM, DIS- SOLVED (UG/L AS AL) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 10 | -- | -- | 0.02 | 0.43 | 0.12 | 0.2 | 0.03 | 0.03 | 0.01 | -- |
| NOV | | | | | | | | | | | |
| 26... | 11 | 68 | 52 | <0.01 | 0.43 | <0.01 | 0.3 | 0.04 | 0.02 | 0.02 | 30 |
| DEC | | | | | | | | | | | |
| 11... | 13 | -- | -- | <0.01 | 0.29 | <0.01 | 0.6 | 0.11 | 0.07 | 0.07 | -- |
| JAN | | | | | | | | | | | |
| 28... | 13 | 50 | 49 | 0.02 | 1.10 | 0.04 | 0.3 | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 25... | 12 | 50 | 48 | <0.01 | 0.78 | 0.01 | 0.3 | 0.06 | <0.01 | -- | 30 |
| MAR | | | | | | | | | | | |
| 28... | 9.0 | -- | -- | <0.01 | 0.31 | <0.01 | 0.7 | 0.11 | 0.09 | 0.07 | -- |
| APR | | | | | | | | | | | |
| 23... | 7.3 | 44 | 45 | 0.01 | 0.39 | 0.04 | 0.7 | 0.16 | 0.09 | 0.08 | 10 |
| MAY | | | | | | | | | | | |
| 22... | 12 | -- | -- | <0.01 | 0.52 | 0.02 | 0.2 | 0.03 | 0.02 | 0.02 | -- |
| JUN | | | | | | | | | | | |
| 18... | 9.1 | 53 | 49 | <0.01 | 0.45 | <0.01 | 0.6 | 0.03 | 0.02 | <0.01 | -- |
| JUL | | | | | | | | | | | |
| 16... | -- | -- | -- | 0.03 | 0.67 | 0.18 | 0.6 | 0.03 | 0.02 | <0.01 | -- |
| AUG | | | | | | | | | | | |
| 28... | 11 | 53 | 47 | <0.01 | 0.48 | 0.04 | 0.4 | 0.05 | 0.03 | 0.03 | 30 |
| SEP | | | | | | | | | | | |
| 23... | 4.8 | -- | -- | <0.01 | <0.10 | <0.01 | 0.2 | 0.04 | 0.04 | 0.01 | -- |

| DATE | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) | LITHIUM DIS- SOLVED (UG/L AS LI) | MANGA- NESE, DIS- SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 26... | <1 | 17 | <0.5 | <1 | 1 | <3 | <1 | 210 | 4 | <4 | 32 |
| DEC | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 25... | <1 | 20 | <0.5 | <1 | <1 | <3 | <1 | 100 | 1 | <4 | 12 |
| MAR | | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 23... | <1 | 23 | <0.5 | <1 | <1 | <3 | <1 | 85 | 2 | <4 | 26 |
| MAY | | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 28... | 1 | 19 | 0.7 | <1 | 1 | <3 | 1 | 180 | <1 | 27 | 29 |
| SEP | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRON-TIUM, DIS-SOLVED (UG/L AS SR) | VANA-DIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT<br>09... | -- | -- | -- | -- | -- | -- | -- | -- | 1.9 | 2 | 89 |
| NOV<br>26... | <0.1 | <10 | <1 | <1 | <1 | 35 | <6 | 4 | 2.4 | 5 | 51 |
| DEC<br>11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6 | 66 |
| JAN<br>28... | -- | -- | -- | -- | -- | -- | -- | -- | 6.1 | 5 | 68 |
| FEB<br>25... | <0.1 | <10 | <1 | <1 | 1 | 33 | <6 | <3 | 1.8 | 6 | 93 |
| MAR<br>28... | -- | -- | -- | -- | -- | -- | -- | -- | 3.0 | 8 | 91 |
| APR<br>23... | 0.4 | <10 | <1 | <1 | <1 | 37 | <6 | 14 | -- | 3 | 88 |
| MAY<br>22... | -- | -- | -- | -- | -- | -- | -- | -- | 4.0 | 5 | -- |
| JUN<br>18... | -- | -- | -- | -- | -- | -- | -- | -- | 3.1 | 6 | 83 |
| JUL<br>16... | -- | -- | -- | -- | -- | -- | -- | -- | 5.0 | 9 | 89 |
| AUG<br>28... | <0.1 | <10 | 2 | <1 | <1 | 33 | <6 | 6 | 2.0 | 4 | 83 |
| SEP<br>23... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 | 5 | 69 |

## 01668500 CAT POINT CREEK NEAR MONTROSS, VA

**LOCATION.**--Lat 38°02'23", long 76°49'38", Richmond County, Hydrologic Unit 02080104, on right bank 200 ft upstream from bridge on State Highway 637, 1.7 mi west of Farmers Fork, 3.8 mi south of Montross, and 11.4 mi upstream from mouth.

**DRAINAGE AREA.**--45.6 mi$^2$.

**PERIOD OF RECORD.**--September 1943 to current year.

**REVISED RECORDS.**--WSP 1382: 1944(M), 1945, 1946-51(M), 1952(P), 1953-54(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 3.04 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 19, 1953, nonrecording gage near right bank at downstream side of highway bridge at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 20-23, 27-30, Feb. 3, 4, and Apr. 25-29. Records good except those for periods of doubtful or no gage-height record, Jan. 20-23, 27-30, Feb. 3, 4, and Apr. 25-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--42 years, 45.0 ft$^3$/s, 13.40 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 6,820 ft$^3$/s, Aug. 20, 1969, gage height, 10.45 ft, from rating curve extended above 1,400 ft$^3$/s; no flow at times in 1943, 1957, 1959, 1960, 1966, and 1977.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in September 1935 exceeded 9.3 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 250 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 1200 | 394 | 5.84 | Sept. 27 | 1600 | *1,940 | *8.03 |

Minimum discharge, 0.25 ft$^3$/s, July 15, 16.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 36 | 52 | 25 | 57 | 35 | 26 | 11 | 17 | .63 | 10 | 13 |
| 2 | 28 | 33 | 42 | 28 | 103 | 33 | 24 | 11 | 12 | .56 | 8.0 | 10 |
| 3 | 23 | 31 | 39 | 42 | 80 | 30 | 23 | 17 | 9.0 | .60 | 6.2 | 9.0 |
| 4 | 16 | 31 | 36 | 66 | 65 | 30 | 23 | 21 | 7.1 | .56 | 5.4 | 7.7 |
| 5 | 13 | 33 | 35 | 64 | 54 | 30 | 23 | 20 | 6.5 | .52 | 4.3 | 6.4 |
| 6 | 12 | 35 | 59 | 50 | 50 | 29 | 23 | 19 | 17 | .52 | 3.4 | 5.9 |
| 7 | 11 | 34 | 54 | 40 | 41 | 28 | 22 | 14 | 31 | .52 | 3.1 | 5.1 |
| 8 | 11 | 32 | 46 | 34 | 36 | 29 | 28 | 11 | 28 | .42 | 3.9 | 4.9 |
| 9 | 11 | 31 | 40 | 30 | 36 | 32 | 28 | 8.8 | 20 | .33 | 4.0 | 5.0 |
| 10 | 11 | 31 | 36 | 28 | 36 | 31 | 27 | 7.2 | 11 | .33 | 3.8 | 7.3 |
| 11 | 12 | 32 | 34 | 28 | 35 | 30 | 27 | 6.8 | 20 | .31 | 3.5 | 6.9 |
| 12 | 13 | 36 | 32 | 27 | 70 | 32 | 27 | 9.6 | 24 | .32 | 3.4 | 5.4 |
| 13 | 14 | 35 | 31 | 27 | 98 | 31 | 25 | 10 | 28 | .32 | 3.1 | 4.7 |
| 14 | 15 | 33 | 30 | 26 | 73 | 30 | 24 | 8.0 | 19 | .31 | 2.6 | 4.0 |
| 15 | 17 | 31 | 29 | 26 | 61 | 28 | 23 | 6.6 | 10 | .27 | 2.0 | 3.5 |
| 16 | 22 | 30 | 28 | 25 | 54 | 27 | 23 | 6.0 | 7.7 | .37 | 2.1 | 3.0 |
| 17 | 19 | 28 | 28 | 25 | 48 | 26 | 22 | 8.8 | 7.0 | 30 | 3.6 | 2.7 |
| 18 | 19 | 28 | 28 | 25 | 46 | 25 | 20 | 13 | 5.3 | 24 | 15 | 2.2 |
| 19 | 20 | 56 | 27 | 27 | 44 | 24 | 18 | 12 | 4.3 | 8.5 | 287 | 1.8 |
| 20 | 22 | 59 | 26 | 26 | 41 | 24 | 19 | 9.4 | 3.6 | 5.8 | 167 | 1.5 |
| 21 | 23 | 50 | 26 | 24 | 39 | 24 | 17 | 10 | 3.2 | 4.5 | 81 | 1.5 |
| 22 | 24 | 40 | 27 | 23 | 38 | 28 | 17 | 41 | 2.6 | 3.5 | 46 | 1.6 |
| 23 | 28 | 35 | 26 | 22 | 36 | 38 | 15 | 38 | 2.3 | 2.6 | 29 | 2.1 |
| 24 | 62 | 33 | 25 | 24 | 35 | 45 | 15 | 45 | 1.9 | 2.1 | 22 | 3.4 |
| 25 | 57 | 31 | 24 | 25 | 33 | 50 | 15 | 70 | 1.6 | 2.5 | 22 | 4.0 |
| 26 | 46 | 30 | 22 | 26 | 44 | 42 | 14 | 54 | 1.3 | 4.8 | 31 | 11 |
| 27 | 39 | 29 | 22 | 24 | 48 | 36 | 13 | 35 | 1.0 | 8.7 | 40 | 1170 |
| 28 | 35 | 32 | 22 | 24 | 41 | 32 | 14 | 24 | .94 | 11 | 32 | 510 |
| 29 | 46 | 86 | 22 | 23 | --- | 29 | 13 | 24 | .76 | 12 | 22 | 120 |
| 30 | 44 | 71 | 22 | 23 | --- | 28 | 12 | 21 | .66 | 12 | 18 | 59 |
| 31 | 41 | --- | 24 | 26 | --- | 27 | --- | 17 | --- | 11 | 15 | --- |
| TOTAL | 774 | 1132 | 994 | 933 | 1442 | 963 | 620 | 609.2 | 303.76 | 149.89 | 899.4 | 1992.6 |
| MEAN | 25.0 | 37.7 | 32.1 | 30.1 | 51.5 | 31.1 | 20.7 | 19.7 | 10.1 | 4.84 | 29.0 | 66.4 |
| MAX | 62 | 86 | 59 | 66 | 103 | 50 | 28 | 70 | 31 | 30 | 287 | 1170 |
| MIN | 11 | 28 | 22 | 22 | 33 | 24 | 12 | 6.0 | .66 | .27 | 2.0 | 1.5 |
| CFSM | .55 | .83 | .70 | .66 | 1.13 | .68 | .45 | .43 | .22 | .11 | .64 | 1.46 |
| IN. | .63 | .92 | .81 | .76 | 1.18 | .79 | .51 | .50 | .25 | .12 | .73 | 1.63 |

CAL YR 1984 TOTAL 26957.5 MEAN 73.7 MAX 943 MIN 4.0 CFSM 1.62 IN. 21.99
WTR YR 1985 TOTAL 10812.85 MEAN 29.6 MAX 1170 MIN .27 CFSM .65 IN. 8.82

## 01668800 HOSKINS CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°55'38", long 76°57'16", Essex County, Hydrologic Unit 02080104, at bridge on State Highway 717, 0.4 mi upstream from Criddlin Swamp, 2.9 mi downstream from site of Hutchinson Mill Pond (destroyed by flood of August 1969), and 5.0 mi west of Tappahannock.

DRAINAGE AREA.--15.5 mi².

PERIOD OF RECORD.--October 1964 to September 1969, June 1970 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 36.28 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 20, 21. Records good except those for period with ice effect, Jan. 20, 21, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--20 years, 17.0 ft³/s, 14.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,380 ft³/s, Aug. 20, 1969, gage height, 10.23 ft, from rating curve extended above 100 ft³/s on basis of velocity-area study; minimum, 0.20 ft³/s, Sept. 12, 13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 100 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 1230 | 165 | 4.26 | Sept. 27 | 1130 | *208 | *4.91 |

Minimum daily discharge, 0.70 ft³/s, July 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 9.6 | 20 | 11 | 32 | 15 | 8.8 | 6.4 | 3.6 | .95 | 3.5 | 6.1 |
| 2 | 29 | 9.4 | 15 | 12 | 57 | 13 | 7.9 | 6.6 | 3.0 | 1.0 | 3.0 | 6.1 |
| 3 | 17 | 8.9 | 15 | 28 | 39 | 12 | 7.5 | 10 | 3.5 | 1.1 | 2.6 | 6.3 |
| 4 | 10 | 8.9 | 13 | 45 | 27 | 12 | 7.5 | 12 | 2.8 | 1.2 | 2.2 | 6.2 |
| 5 | 7.7 | 10 | 13 | 35 | 23 | 12 | 7.0 | 9.4 | 8.4 | 1.1 | 2.0 | 6.1 |
| 6 | 7.4 | 12 | 30 | 22 | 22 | 10 | 7.0 | 10 | 20 | 1.2 | 1.9 | 6.0 |
| 7 | 7.4 | 10 | 24 | 19 | 21 | 9.2 | 6.6 | 8.2 | 16 | 1.2 | 1.8 | 6.0 |
| 8 | 6.8 | 9.7 | 18 | 19 | 19 | 11 | 9.9 | 7.1 | 11 | 1.0 | 2.1 | 5.5 |
| 9 | 6.8 | 9.7 | 14 | 15 | 18 | 15 | 9.4 | 6.4 | 6.8 | .95 | 11 | 5.3 |
| 10 | 6.8 | 9.4 | 13 | 13 | 18 | 12 | 7.9 | 6.3 | 4.7 | 1.2 | 5.1 | 5.5 |
| 11 | 6.9 | 11 | 12 | 14 | 18 | 11 | 8.4 | 6.0 | 19 | 1.1 | 3.1 | 5.5 |
| 12 | 6.9 | 14 | 12 | 14 | 44 | 12 | 8.8 | 6.2 | 13 | 1.1 | 2.8 | 5.4 |
| 13 | 6.9 | 12 | 11 | 13 | 48 | 11 | 8.8 | 6.2 | 9.4 | 1.1 | 2.7 | 4.8 |
| 14 | 6.6 | 11 | 11 | 14 | 30 | 9.7 | 9.4 | 5.8 | 5.8 | 1.1 | 2.6 | 4.4 |
| 15 | 6.8 | 9.7 | 11 | 13 | 24 | 8.8 | 11 | 5.1 | 3.9 | .99 | 2.4 | 4.3 |
| 16 | 6.8 | 9.4 | 11 | 13 | 21 | 8.2 | 9.7 | 5.0 | 3.6 | .96 | 2.2 | 4.2 |
| 17 | 7.0 | 9.2 | 11 | 13 | 20 | 8.2 | 8.6 | 7.1 | 3.6 | 1.5 | 2.1 | 3.9 |
| 18 | 6.9 | 9.6 | 11 | 14 | 20 | 8.0 | 7.5 | 7.7 | 3.3 | 1.6 | 8.6 | 3.8 |
| 19 | 7.0 | 27 | 11 | 14 | 19 | 7.0 | 7.1 | 6.2 | 2.9 | 1.0 | 124 | 3.6 |
| 20 | 7.7 | 28 | 11 | 13 | 18 | 7.1 | 6.8 | 5.4 | 2.5 | .90 | 56 | 3.9 |
| 21 | 7.7 | 18 | 11 | 11 | 18 | 7.0 | 7.5 | 5.0 | 2.1 | .84 | 25 | 4.1 |
| 22 | 7.7 | 13 | 11 | 11 | 17 | 9.7 | 7.9 | 6.4 | 1.9 | .92 | 12 | 4.9 |
| 23 | 8.5 | 11 | 11 | 9.6 | 17 | 17 | 7.0 | 7.3 | 1.7 | .78 | 6.9 | 8.1 |
| 24 | 18 | 10 | 10 | 11 | 17 | 24 | 6.8 | 16 | 1.6 | .70 | 5.7 | 8.5 |
| 25 | 24 | 9.9 | 10 | 13 | 16 | 22 | 9.9 | 30 | 1.5 | 1.0 | 6.1 | 8.1 |
| 26 | 16 | 9.7 | 9.9 | 13 | 21 | 16 | 7.3 | 18 | 1.3 | 2.2 | 8.5 | 11 |
| 27 | 11 | 10 | 9.9 | 11 | 22 | 13 | 6.6 | 12 | 1.0 | 3.3 | 9.9 | 154 |
| 28 | 9.7 | 15 | 9.9 | 11 | 17 | 11 | 6.8 | 6.3 | .95 | 2.9 | 7.8 | 59 |
| 29 | 10 | 55 | 10 | 11 | --- | 10 | 6.6 | 4.7 | .90 | 6.2 | 7.2 | 17 |
| 30 | 10 | 36 | 10 | 10 | --- | 10 | 6.6 | 3.6 | .95 | 9.5 | 6.6 | 7.9 |
| 31 | 9.7 | --- | 11 | 12 | --- | 9.4 | --- | 3.2 | --- | 4.4 | 6.2 | --- |
| TOTAL | 329.7 | 426.1 | 400.7 | 477.6 | 683 | 361.3 | 238.6 | 255.6 | 160.70 | 54.99 | 343.6 | 385.5 |
| MEAN | 10.6 | 14.2 | 12.9 | 15.4 | 24.4 | 11.7 | 7.95 | 8.25 | 5.36 | 1.77 | 11.1 | 12.8 |
| MAX | 29 | 55 | 30 | 45 | 57 | 24 | 11 | 30 | 20 | 9.5 | 124 | 154 |
| MIN | 6.6 | 8.9 | 9.9 | 9.6 | 16 | 7.0 | 6.6 | 3.2 | .90 | .70 | 1.8 | 3.6 |
| CFSM | .68 | .92 | .83 | .99 | 1.57 | .75 | .51 | .53 | .35 | .11 | .72 | .83 |
| IN. | .79 | 1.02 | .96 | 1.15 | 1.64 | .87 | .57 | .61 | .39 | .13 | .82 | .93 |

CAL YR 1984 TOTAL 9073.0 MEAN 24.8 MAX 253 MIN 4.0 CFSM 1.60 IN. 21.78
WTR YR 1985 TOTAL 4117.39 MEAN 11.3 MAX 154 MIN .70 CFSM .73 IN. 9.88

## 01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°52'37", long 76°54'03", Essex County, Hydrologic Unit 02080104, on right bank at upstream side of bridge on State Highway 691, 0.6 mi south of Hensley Fork, 2.3 mi downstream from Sturgeon Swamp, and 4.2 mi southwest of Tappahannock.

DRAINAGE AREA.--28.0 mi².

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1970-76(P), 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 2.50 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 21, 22. Records good except those for periods with ice effect, Jan. 16, 21, 22, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--34 years, 32.2 ft³/s, 15.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,380 ft³/s, Aug. 20, 1969, gage height, 7.52 ft, from rating curve extended above 1,400 ft³/s; minimum, 0.01 ft³/s, Oct. 2, 1954; minimum gage height, 0.07 ft, July 24, 25, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 1600 | 376 | 4.12 | Sept. 27 | 1630 | *526 | *4.62 |

Minimum discharge, 0.75 ft³/s, July 24-25, gage height, 0.07 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 13 | 31 | 16 | 52 | 23 | 19 | 6.8 | 7.1 | 1.4 | 11 | 13 |
| 2 | 45 | 12 | 22 | 17 | 82 | 21 | 18 | 6.1 | 6.2 | 1.5 | 20 | 13 |
| 3 | 25 | 11 | 22 | 36 | 60 | 20 | 17 | 11 | 5.5 | 2.4 | 10 | 11 |
| 4 | 14 | 11 | 22 | 69 | 39 | 19 | 16 | 16 | 4.5 | 2.8 | 6.0 | 10 |
| 5 | 10 | 14 | 21 | 56 | 31 | 20 | 16 | 12 | 7.7 | 3.0 | 4.2 | 9.2 |
| 6 | 9.1 | 22 | 44 | 37 | 30 | 19 | 15 | 8.3 | 22 | 2.7 | 3.2 | 8.2 |
| 7 | 8.5 | 18 | 42 | 29 | 28 | 17 | 15 | 7.3 | 28 | 2.7 | 2.5 | 7.4 |
| 8 | 8.3 | 14 | 27 | 25 | 24 | 18 | 18 | 6.0 | 19 | 2.4 | 8.6 | 6.8 |
| 9 | 8.1 | 12 | 22 | 21 | 23 | 23 | 20 | 6.0 | 14 | 2.3 | 65 | 6.3 |
| 10 | 8.2 | 11 | 20 | 20 | 22 | 23 | 16 | 7.4 | 10 | 2.1 | 38 | 6.0 |
| 11 | 8.1 | 12 | 19 | 20 | 21 | 19 | 16 | 7.4 | 24 | 1.8 | 15 | 5.7 |
| 12 | 8.0 | 14 | 18 | 20 | 62 | 20 | 16 | 7.5 | 25 | 1.4 | 7.3 | 5.0 |
| 13 | 8.2 | 15 | 17 | 20 | 83 | 20 | 15 | 9.2 | 18 | 1.4 | 4.4 | 4.6 |
| 14 | 7.8 | 12 | 16 | 19 | 46 | 19 | 15 | 8.6 | 11 | 1.4 | 3.7 | 4.0 |
| 15 | 7.9 | 11 | 16 | 20 | 34 | 18 | 15 | 8.2 | 8.4 | 1.3 | 3.0 | 3.8 |
| 16 | 7.5 | 11 | 15 | 17 | 30 | 16 | 16 | 9.9 | 7.2 | 1.3 | 2.4 | 3.9 |
| 17 | 7.4 | 10 | 15 | 18 | 28 | 16 | 15 | 11 | 6.1 | 1.7 | 2.1 | 3.4 |
| 18 | 7.9 | 11 | 15 | 20 | 27 | 16 | 13 | 15 | 6.1 | 1.3 | 15 | 3.5 |
| 19 | 8.1 | 31 | 15 | 21 | 26 | 15 | 12 | 15 | 5.2 | 1.2 | 293 | 3.7 |
| 20 | 8.4 | 46 | 15 | 21 | 25 | 15 | 12 | 11 | 4.4 | 1.2 | 121 | 3.7 |
| 21 | 8.6 | 26 | 15 | 17 | 23 | 15 | 11 | 11 | 4.0 | 1.0 | 69 | 3.5 |
| 22 | 8.5 | 17 | 15 | 16 | 22 | 18 | 11 | 13 | 3.4 | 1.0 | 51 | 6.3 |
| 23 | 9.1 | 14 | 15 | 17 | 23 | 33 | 9.4 | 17 | 3.0 | .91 | 29 | 15 |
| 24 | 16 | 14 | 14 | 18 | 23 | 45 | 8.8 | 32 | 2.7 | .82 | 19 | 17 |
| 25 | 25 | 13 | 13 | 20 | 22 | 38 | 9.0 | 63 | 2.3 | 1.2 | 25 | 12 |
| 26 | 18 | 13 | 12 | 20 | 31 | 28 | 8.6 | 36 | 1.9 | 3.1 | 41 | 21 |
| 27 | 14 | 13 | 12 | 19 | 38 | 23 | 8.0 | 18 | 1.6 | 9.3 | 57 | 419 |
| 28 | 12 | 20 | 12 | 18 | 28 | 21 | 7.6 | 12 | 1.5 | 8.7 | 35 | 166 |
| 29 | 12 | 83 | 13 | 18 | --- | 21 | 7.3 | 9.3 | 1.4 | 9.0 | 22 | 56 |
| 30 | 11 | 61 | 12 | 18 | --- | 21 | 7.1 | 6.8 | 1.3 | 9.2 | 17 | 37 |
| 31 | 13 | --- | 14 | 21 | --- | 20 | --- | 6.9 | --- | 8.8 | 15 | --- |
| TOTAL | 394.7 | 585 | 581 | 724 | 983 | 660 | 402.8 | 414.7 | 262.5 | 90.33 | 1015.4 | 885.0 |
| MEAN | 12.7 | 19.5 | 18.7 | 23.4 | 35.1 | 21.3 | 13.4 | 13.4 | 8.75 | 2.91 | 32.8 | 29.5 |
| MAX | 45 | 83 | 44 | 69 | 83 | 45 | 20 | 63 | 28 | 9.3 | 293 | 419 |
| MIN | 7.4 | 10 | 12 | 16 | 21 | 15 | 7.1 | 6.0 | 1.3 | .82 | 2.1 | 3.4 |
| CFSM | .45 | .70 | .67 | .84 | 1.25 | .76 | .48 | .48 | .31 | .10 | 1.17 | 1.05 |
| IN. | .52 | .78 | .77 | .96 | 1.31 | .88 | .54 | .55 | .35 | .12 | 1.35 | 1.18 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 15380.7 | MEAN | 42.0 | MAX | 376 | MIN | 4.8 | CFSM 1.50 | IN. | 20.43 |
| WTR YR 1985 | TOTAL | 6998.43 | MEAN | 19.2 | MAX | 419 | MIN | .82 | CFSM .69 | IN. | 9.30 |

## 01669520 DRAGON SWAMP AT MASCOT, VA

LOCATION.--Lat 37°38'01", long 76°41'48", King and Queen County, Hydrologic Unit 02080102, on right bank at upstream side of bridge on State Highway 603, 0.8 mi east of Mascot, 2.1 mi downstream from Church Swamp, and 3.3 mi west of Warner.

DRAINAGE AREA.--108 mi².

PERIOD OF RECORD.--August 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 21.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 18-22. Records good except those for periods with ice effect, Jan. 16, 18-22, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft³/s, Apr. 17, 1983, gage height, 8.85 ft, from rating curve extended above 1,400 ft³/s; minimum, 0.30 ft³/s, Sept. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 600 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Sept. 28 | 2400 | *1,720 | *8.17 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 1.0 ft³/s, July 20-21, gage height, 1.60 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 10 | 116 | 37 | 130 | 74 | 58 | 7.0 | 52 | 2.3 | 24 | 28 |
| 2 | 17 | 11 | 125 | 42 | 199 | 78 | 51 | 6.5 | 32 | 2.6 | 20 | 43 |
| 3 | 16 | 10 | 131 | 85 | 195 | 74 | 48 | 20 | 18 | 6.1 | 14 | 73 |
| 4 | 15 | 10 | 114 | 141 | 195 | 66 | 46 | 18 | 12 | 3.6 | 8.9 | 68 |
| 5 | 15 | 11 | 101 | 158 | 180 | 61 | 43 | 16 | 12 | 5.1 | 6.3 | 48 |
| 6 | 14 | 15 | 117 | 156 | 147 | 55 | 39 | 13 | 20 | 3.4 | 5.1 | 33 |
| 7 | 14 | 19 | 105 | 141 | 120 | 50 | 37 | 11 | 20 | 4.4 | 4.6 | 23 |
| 8 | 13 | 22 | 93 | 116 | 107 | 47 | 40 | 8.8 | 34 | 3.8 | 9.8 | 17 |
| 9 | 12 | 22 | 85 | 97 | 103 | 49 | 37 | 7.4 | 30 | 3.1 | 66 | 13 |
| 10 | 12 | 21 | 82 | 78 | 79 | 48 | 36 | 6.6 | 29 | 3.2 | 80 | 12 |
| 11 | 11 | 22 | 78 | 65 | 70 | 48 | 34 | 6.5 | 46 | 3.2 | 40 | 8.7 |
| 12 | 10 | 25 | 69 | 64 | 124 | 51 | 34 | 6.1 | 66 | 2.6 | 27 | 7.4 |
| 13 | 9.5 | 23 | 62 | 54 | 174 | 50 | 32 | 5.8 | 80 | 2.4 | 26 | 6.6 |
| 14 | 8.5 | 22 | 58 | 49 | 174 | 50 | 33 | 5.5 | 78 | 2.5 | 19 | 6.1 |
| 15 | 8.5 | 19 | 54 | 48 | 180 | 48 | 42 | 5.2 | 73 | 2.1 | 12 | 5.4 |
| 16 | 7.7 | 18 | 50 | 44 | 169 | 46 | 42 | 4.8 | 83 | 1.7 | 8.4 | 4.8 |
| 17 | 6.8 | 16 | 45 | 40 | 139 | 44 | 38 | 5.3 | 80 | 1.5 | 7.8 | 4.1 |
| 18 | 6.8 | 15 | 44 | 39 | 112 | 41 | 39 | 5.2 | 65 | 1.3 | 19 | 3.5 |
| 19 | 7.2 | 44 | 42 | 38 | 95 | 40 | 32 | 4.1 | 54 | 1.2 | 156 | 3.2 |
| 20 | 6.8 | 62 | 41 | 37 | 81 | 37 | 29 | 3.4 | 42 | 1.1 | 161 | 2.9 |
| 21 | 6.2 | 60 | 42 | 37 | 71 | 34 | 24 | 3.3 | 30 | 1.3 | 197 | 2.8 |
| 22 | 6.1 | 60 | 41 | 36 | 65 | 41 | 21 | 5.5 | 20 | 3.1 | 261 | 3.8 |
| 23 | 6.1 | 63 | 38 | 36 | 62 | 62 | 17 | 7.4 | 14 | 4.7 | 236 | 6.0 |
| 24 | 6.4 | 62 | 36 | 35 | 59 | 77 | 16 | 24 | 9.5 | 4.1 | 181 | 5.9 |
| 25 | 7.6 | 56 | 37 | 40 | 57 | 83 | 15 | 51 | 7.0 | 4.1 | 126 | 5.2 |
| 26 | 8.2 | 49 | 36 | 44 | 74 | 91 | 13 | 53 | 5.1 | 7.6 | 91 | 22 |
| 27 | 8.3 | 45 | 35 | 43 | 78 | 90 | 12 | 64 | 3.7 | 7.5 | 74 | 938 |
| 28 | 8.8 | 47 | 34 | 47 | 75 | 79 | 11 | 109 | 3.0 | 6.1 | 57 | 1350 |
| 29 | 9.7 | 97 | 34 | 51 | --- | 69 | 9.0 | 167 | 2.8 | 5.3 | 42 | 1500 |
| 30 | 11 | 71 | 33 | 52 | --- | 74 | 7.7 | 141 | 2.5 | 4.8 | 30 | 865 |
| 31 | 11 | --- | 35 | 62 | --- | 66 | --- | 91 | --- | 6.8 | 29 | --- |
| TOTAL | 311.2 | 1027 | 2013 | 2012 | 3314 | 1823 | 935.7 | 882.4 | 1023.6 | 112.6 | 2038.9 | 5109.4 |
| MEAN | 10.0 | 34.2 | 64.9 | 64.9 | 118 | 58.8 | 31.2 | 28.5 | 34.1 | 3.63 | 65.8 | 170 |
| MAX | 17 | 97 | 131 | 158 | 199 | 91 | 58 | 167 | 83 | 7.6 | 261 | 1500 |
| MIN | 6.1 | 10 | 33 | 35 | 57 | 34 | 7.7 | 3.3 | 2.5 | 1.1 | 4.6 | 2.8 |
| CFSM | .09 | .32 | .60 | .60 | 1.09 | .54 | .29 | .26 | .32 | .03 | .61 | 1.57 |
| IN. | .11 | .35 | .69 | .69 | 1.14 | .63 | .32 | .30 | .35 | .04 | .70 | 1.76 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 52551.2 | MEAN | 144 | MAX | 1430 | MIN | 3.7 | CFSM | 1.33 | IN. | 18.10 |
| WTR YR 1985 | TOTAL | 20602.8 | MEAN | 56.4 | MAX | 1500 | MIN | 1.1 | CFSM | .52 | IN. | 7.10 |

## 01670000 BEAVERDAM SWAMP NEAR ARK, VA

**LOCATION.**--Lat 37°28'14", long 76°33'40", Gloucester County, Hydrologic Unit 02080102, on right bank 300 ft downstream from bridge on State Highway 606, 1.4 mi upstream from Beech Swamp, 2.3 mi north of Ark, and 4.3 mi northwest of Gloucester.

**DRAINAGE AREA.**--6.63 mi$^2$.

**PERIOD OF RECORD.**--October 1949 to current year.

**REVISED RECORDS.**--WSP 1502: 1950, 1951-52(M). WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 36.43 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Nov. 7 to Dec. 10, Jan. 20-22, Mar. 7-23, Mar. 25 to Apr. 14, Apr. 17 to May 27, July 22 to Aug. 16, and Aug. 25 to Sept. 21. Records fair except those for periods of doubtful or no gage-height record, Nov. 7 to Dec. 10, Mar. 7-23, Mar. 25 to Apr. 14, Apr. 17 to May 27, July 22 to Aug. 16, and Aug. 25 to Sept. 21, and period with ice effect, Jan. 20-22, which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--36 years, 7.18 ft$^3$/s, 14.71 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 570 ft$^3$/s, Sept. 12, 1960, gage height, 5.88 ft, from rating curve extended above 130 ft$^3$/s; no flow July 30 to Aug. 2, 1953, Aug. 18, Sept. 4, Sept. 29 to Oct. 2, 1981.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 65 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Sept. 27 | 0730 | *496 | *4.59 | No other peak equal to or greater than base discharge. | | | |

Minimum daily discharge, 0.08 ft$^3$/s, July 20.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.8 | 2.1 | 3.3 | 3.2 | 19 | 4.8 | 4.2 | 2.7 | 1.3 | .68 | 2.0 | 2.1 |
| 2 | 1.9 | 1.6 | 3.0 | 3.6 | 21 | 5.6 | 4.0 | 2.7 | 1.2 | .58 | 1.7 | 1.7 |
| 3 | 1.4 | 1.3 | 3.5 | 5.6 | 12 | 5.1 | 3.5 | 4.4 | 1.2 | .55 | 1.5 | 1.4 |
| 4 | 1.1 | 1.6 | 2.8 | 6.6 | 7.3 | 4.6 | 3.4 | 4.6 | 1.3 | .48 | 1.3 | 1.2 |
| 5 | .95 | 1.9 | 2.5 | 4.8 | 5.8 | 4.6 | 3.1 | 4.2 | 4.3 | .45 | 1.1 | 1.0 |
| 6 | .95 | 2.2 | 4.5 | 3.7 | 6.0 | 4.6 | 3.2 | 3.7 | 6.0 | .43 | 1.0 | .90 |
| 7 | .95 | 1.9 | 4.0 | 3.4 | 5.7 | 4.5 | 3.4 | 3.2 | 3.2 | .50 | .90 | .80 |
| 8 | .90 | 1.8 | 3.8 | 3.3 | 4.6 | 4.5 | 4.1 | 2.9 | 2.5 | .41 | 2.9 | .70 |
| 9 | .90 | 1.7 | 3.7 | 3.2 | 4.1 | 4.6 | 4.1 | 2.8 | 2.6 | .33 | 1.5 | .60 |
| 10 | .90 | 1.6 | 3.6 | 3.1 | 4.1 | 4.6 | 3.8 | 2.5 | 2.3 | .27 | 1.0 | .70 |
| 11 | .85 | 1.8 | 3.6 | 3.3 | 4.1 | 4.3 | 3.7 | 2.7 | 1.9 | .27 | .80 | .60 |
| 12 | .85 | 2.3 | 3.5 | 3.3 | 15 | 4.6 | 3.7 | 2.5 | 2.6 | .24 | .60 | .50 |
| 13 | .85 | 2.1 | 3.5 | 3.3 | 15 | 4.5 | 3.7 | 2.5 | 3.8 | .22 | .50 | .45 |
| 14 | .85 | 1.9 | 3.4 | 3.3 | 7.4 | 4.0 | 3.8 | 2.3 | 2.9 | .19 | .35 | .38 |
| 15 | .90 | 1.8 | 3.5 | 3.4 | 5.4 | 3.7 | 7.3 | 2.2 | 2.1 | .17 | .25 | .35 |
| 16 | .90 | 1.7 | 3.4 | 3.1 | 48 | 3.5 | 7.1 | 2.2 | 1.7 | .16 | .20 | .33 |
| 17 | .90 | 1.6 | 3.4 | 3.1 | 4.3 | 3.3 | 6.6 | 2.4 | 1.6 | .16 | 1.0 | .32 |
| 18 | .85 | 1.5 | 3.3 | 3.6 | 4.2 | 3.3 | 5.7 | 3.0 | 1.3 | .13 | 2.4 | .27 |
| 19 | .85 | 3.0 | 3.3 | 3.8 | 4.2 | 3.0 | 5.4 | 2.8 | 1.4 | .09 | 30 | .26 |
| 20 | .90 | 4.0 | 3.2 | 3.1 | 4.0 | 3.0 | 4.8 | 2.3 | 1.2 | .08 | 14 | .24 |
| 21 | 1.1 | 3.0 | 3.3 | 2.9 | 4.0 | 3.0 | 4.5 | 2.3 | .95 | .12 | 4.3 | .23 |
| 22 | 1.2 | 2.5 | 3.3 | 2.6 | 4.5 | 5.2 | 4.1 | 6.0 | .75 | .70 | 4.2 | .62 |
| 23 | 1.6 | 2.2 | 3.3 | 2.7 | 4.5 | 8.9 | 3.6 | 6.3 | .68 | 3.5 | 4.4 | 3.0 |
| 24 | 3.6 | 2.1 | 3.1 | 2.9 | 4.5 | 9.6 | 3.5 | 8.3 | .65 | 1.0 | 4.8 | 3.8 |
| 25 | 3.5 | 2.0 | 3.1 | 3.6 | 4.4 | 7.3 | 3.6 | 9.8 | .52 | .70 | 5.4 | 3.8 |
| 26 | 2.4 | 1.9 | 3.1 | 4.0 | 5.8 | 5.6 | 3.7 | 5.6 | .45 | 1.6 | 4.8 | 10 |
| 27 | 1.8 | 2.5 | 3.1 | 3.3 | 5.8 | 4.5 | 3.3 | 3.0 | .41 | 1.5 | 4.0 | 254 |
| 28 | 1.5 | 4.1 | 3.1 | 3.5 | 5.0 | 4.4 | 3.2 | 1.3 | .52 | 1.3 | 3.5 | 37 |
| 29 | 1.4 | 4.6 | 3.0 | 3.6 | --- | 4.2 | 3.0 | 1.3 | .70 | 1.1 | 3.1 | 11 |
| 30 | 1.4 | 4.0 | 3.0 | 3.2 | --- | 5.7 | 2.9 | 1.3 | .80 | .90 | 2.8 | 5.2 |
| 31 | 1.6 | --- | 3.0 | 5.8 | --- | 5.0 | --- | 1.3 | --- | 2.7 | 2.5 | --- |
| TOTAL | 41.55 | 68.3 | 103.2 | 111.9 | 239.7 | 148.1 | 124.0 | 105.1 | 52.83 | 21.51 | 108.80 | 343.45 |
| MEAN | 1.34 | 2.28 | 3.33 | 3.61 | 8.56 | 4.78 | 4.13 | 3.39 | 1.76 | .69 | 3.51 | 11.4 |
| MAX | 3.6 | 4.6 | 4.5 | 6.6 | 48 | 9.6 | 7.3 | 9.8 | 6.0 | 3.5 | 30 | 254 |
| MIN | .85 | 1.3 | 2.5 | 2.6 | 4.0 | 3.0 | 2.9 | 1.3 | .41 | .08 | .20 | .23 |
| CFSM | .20 | .34 | .50 | .54 | 1.29 | .72 | .62 | .51 | .27 | .10 | .53 | 1.72 |
| IN. | .23 | .38 | .58 | .63 | 1.34 | .83 | .70 | .59 | .30 | .12 | .61 | 1.93 |

CAL YR 1984 TOTAL 3547.02 MEAN 9.69 MAX 131 MIN .47 CFSM 1.46 IN. 19.90
WTR YR 1985 TOTAL 1468.44 MEAN 4.02 MAX 254 MIN .08 CFSM .61 IN. 8.24

## 01670300 CONTRARY CREEK NEAR MINERAL, VA

**LOCATION.**--Lat 38°03'53", long 77°52'45", Louisa County, Hydrologic Unit 02080106, on left bank 400 ft downstream from bridge on U.S. Highway 522 and 4.0 mi northeast of Mineral.

**DRAINAGE AREA.**--5.53 mi$^2$.

**PERIOD OF RECORD.**--October 1975 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 275 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Jan. 16, 21-27, 30 and Feb. 8-10. Records good except those for periods with ice effect, Jan. 16, 21-27, 30 and Feb. 8-10, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--10 years, 5.14 ft$^3$/s, 12.62 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 2,280 ft$^3$/s, Aug. 18, 1985, gage height, 4.70 ft, from rating curve extended above 310 ft$^3$/s; minimum, 0.03 ft$^3$/s, Aug. 22, 1983.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 200 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 2000 | *2,280 | *4.70 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 0.06 ft$^3$/s, July 8, gage height, 0.65 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.3 | 1.4 | 4.1 | 3.6 | 43 | 3.6 | 3.4 | 2.0 | 1.3 | .58 | .75 | 1.5 |
| 2 | 3.8 | 1.4 | 3.6 | 3.4 | 40 | 3.6 | 3.1 | 2.0 | 1.2 | .58 | .75 | 1.4 |
| 3 | 1.6 | 1.3 | 3.6 | 11 | 14 | 3.6 | 2.9 | 12 | 1.0 | .43 | .58 | 1.3 |
| 4 | 1.3 | 3.6 | 3.4 | 17 | 7.6 | 3.4 | 2.9 | 4.1 | 1.0 | .31 | .50 | 1.2 |
| 5 | 1.2 | 11 | 4.2 | 16 | 6.2 | 3.6 | 2.6 | 2.9 | 1.8 | .37 | .43 | 1.1 |
| 6 | 1.2 | 3.4 | 16 | 11 | 5.7 | 3.1 | 2.4 | 2.4 | 3.4 | .31 | .43 | 1.0 |
| 7 | 1.0 | 2.4 | 7.1 | 7.1 | 4.8 | 3.1 | 2.4 | 2.0 | 2.2 | .20 | .43 | .98 |
| 8 | 1.0 | 2.0 | 4.6 | 4.8 | 4.5 | 3.4 | 2.6 | 1.8 | 2.0 | .09 | 1.3 | .93 |
| 9 | 1.0 | 2.0 | 4.1 | 4.3 | 4.2 | 3.4 | 2.4 | 1.8 | 1.4 | .25 | .84 | .94 |
| 10 | 1.0 | 2.0 | 3.8 | 3.8 | 3.9 | 3.1 | 2.4 | 1.6 | 1.4 | .58 | .58 | .90 |
| 11 | 1.0 | 2.9 | 3.6 | 3.8 | 3.8 | 3.1 | 2.6 | 1.6 | 2.0 | .43 | .50 | .82 |
| 12 | 1.0 | 2.4 | 3.6 | 3.6 | 36 | 3.4 | 2.4 | 1.8 | 1.4 | 2.8 | .43 | .75 |
| 13 | 1.0 | 2.2 | 3.1 | 3.6 | 12 | 3.1 | 2.4 | 2.9 | 1.0 | 17 | .31 | .69 |
| 14 | 1.0 | 2.0 | 3.1 | 3.6 | 7.1 | 2.9 | 2.2 | 1.8 | .84 | 8.4 | .25 | .66 |
| 15 | .94 | 2.0 | 2.9 | 3.4 | 5.7 | 2.9 | 3.1 | 1.4 | .84 | 2.0 | .12 | .62 |
| 16 | 1.0 | 2.0 | 2.9 | 3.1 | 4.8 | 2.9 | 2.9 | 2.0 | 1.0 | 1.3 | .09 | .61 |
| 17 | 1.0 | 2.0 | 2.9 | 3.4 | 4.6 | 2.9 | 2.6 | 2.4 | .94 | .94 | .15 | .64 |
| 18 | 1.0 | 2.2 | 2.9 | 3.4 | 4.1 | 2.9 | 2.4 | 2.0 | .84 | .84 | 315 | .59 |
| 19 | 1.0 | 9.6 | 2.9 | 3.6 | 4.1 | 2.9 | 2.2 | 1.4 | .75 | .66 | 33 | .59 |
| 20 | 1.0 | 4.1 | 2.9 | 4.1 | 4.1 | 2.9 | 2.2 | 1.3 | .66 | .66 | 17 | .55 |
| 21 | 1.2 | 2.9 | 3.4 | 3.4 | 3.8 | 2.9 | 2.2 | 1.2 | .58 | .58 | 31 | .52 |
| 22 | 1.2 | 2.6 | 3.6 | 3.0 | 3.6 | 4.6 | 2.2 | 1.3 | .50 | .50 | 6.6 | .73 |
| 23 | 2.2 | 2.4 | 3.1 | 2.9 | 3.6 | 16 | 2.2 | 2.6 | .43 | .37 | 3.4 | .94 |
| 24 | 2.9 | 2.4 | 2.9 | 2.8 | 3.6 | 8.5 | 2.2 | 5.3 | .43 | .31 | 2.9 | .80 |
| 25 | 1.8 | 2.4 | 2.9 | 3.0 | 3.6 | 5.7 | 5.7 | 5.3 | .31 | 1.7 | 6.6 | .66 |
| 26 | 1.6 | 2.2 | 2.6 | 3.0 | 8.0 | 4.3 | 3.1 | 2.2 | .20 | 1.4 | 6.7 | .76 |
| 27 | 1.6 | 2.2 | 2.4 | 3.0 | 5.3 | 3.8 | 2.6 | 1.6 | .15 | 1.2 | 3.7 | 4.3 |
| 28 | 1.6 | 28 | 2.6 | 3.1 | 4.1 | 3.6 | 2.4 | 1.3 | .20 | 1.2 | 2.6 | 1.2 |
| 29 | 1.6 | 19 | 2.6 | 2.6 | --- | 3.8 | 2.2 | 1.8 | .20 | 1.0 | 1.9 | .89 |
| 30 | 1.4 | 6.2 | 2.6 | 2.7 | --- | 3.6 | 2.0 | 1.6 | .37 | .94 | 1.7 | .80 |
| 31 | 1.4 | --- | 4.3 | 4.1 | --- | 3.4 | --- | 1.6 | --- | .75 | 1.6 | --- |
| TOTAL | 50.84 | 132.2 | 118.3 | 151.2 | 255.8 | 124.0 | 78.9 | 77.0 | 30.34 | 48.68 | 442.14 | 29.37 |
| MEAN | 1.64 | 4.41 | 3.82 | 4.88 | 9.14 | 4.00 | 2.63 | 2.48 | 1.01 | 1.57 | 14.3 | .98 |
| MAX | 9.3 | 28 | 16 | 17 | 43 | 16 | 5.7 | 12 | 3.4 | 17 | 315 | 4.3 |
| MIN | .94 | 1.3 | 2.4 | 2.6 | 3.6 | 2.9 | 2.0 | 1.2 | .15 | .09 | .09 | .52 |
| CFSM | .30 | .80 | .69 | .88 | 1.65 | .72 | .48 | .45 | .18 | .28 | 2.59 | .18 |
| IN. | .34 | .89 | .80 | 1.02 | 1.72 | .83 | .53 | .52 | .20 | .33 | 2.97 | .20 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 2970.24 | MEAN | 8.12 | MAX | 320 | MIN | .66 | CFSM | 1.47 | IN. 19.98 |
| WTR YR 1985 | TOTAL | 1538.77 | MEAN | 4.22 | MAX | 315 | MIN | .09 | CFSM | .76 | IN. 10.35 |

## 01670400 NORTH ANNA RIVER NEAR PARTLOW, VA

LOCATION.--Lat 38°00'46", long 77°42'06", Spotsylvania County, Hydrologic Unit 02080106, on left downstream side of bridge on State Highway 601, 1.1 mi upstream from Northeast Creek, and 3.8 mi southwest of Partlow.

DRAINAGE AREA.--344 mi².

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 168.25 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 0.5 mi upstream. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--7 years, 300 ft³/s, 11.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s, Feb. 26, 1979, gage height, 25.30 ft, from rating curve extended above 7,200 ft³/s; minimum, 33 ft³/s, Sept. 27, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1972, reached a stage of 36.32 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,240 ft³/s, Feb. 2, gage height, 9.17 ft; minimum, 41 ft³/s, Sept. 27, 28; minimum daily, 43 ft³/s, Sept. 28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 661 | 57 | 323 | 306 | 868 | 126 | 156 | 59 | 55 | 45 | 52 | 49 |
| 2 | 661 | 58 | 332 | 527 | 2200 | 248 | 70 | 59 | 55 | 44 | 50 | 48 |
| 3 | 219 | 56 | 454 | 697 | 2160 | 206 | 62 | 570 | 55 | 45 | 48 | 49 |
| 4 | 50 | 81 | 328 | 739 | 1970 | 210 | 63 | 267 | 54 | 46 | 50 | 47 |
| 5 | 47 | 145 | 259 | 786 | 605 | 310 | 63 | 73 | 89 | 47 | 50 | 47 |
| 6 | 48 | 60 | 764 | 785 | 578 | 233 | 68 | 64 | 583 | 48 | 51 | 46 |
| 7 | 48 | 60 | 626 | 781 | 306 | 66 | 69 | 56 | 594 | 49 | 50 | 47 |
| 8 | 48 | 55 | 248 | 768 | 131 | 59 | 70 | 54 | 188 | 47 | 52 | 48 |
| 9 | 49 | 51 | 138 | 687 | 80 | 61 | 73 | 54 | 58 | 48 | 50 | 47 |
| 10 | 51 | 50 | 139 | 313 | 68 | 64 | 65 | 54 | 60 | 49 | 50 | 46 |
| 11 | 51 | 52 | 140 | 145 | 80 | 73 | 66 | 53 | 124 | 49 | 53 | 46 |
| 12 | 52 | 54 | 139 | 145 | 1260 | 175 | 66 | 54 | 679 | 54 | 51 | 47 |
| 13 | 53 | 55 | 141 | 143 | 2120 | 115 | 66 | 57 | 711 | 56 | 50 | 47 |
| 14 | 53 | 54 | 141 | 98 | 1470 | 69 | 67 | 75 | 406 | 57 | 52 | 47 |
| 15 | 50 | 53 | 141 | 70 | 465 | 71 | 202 | 135 | 46 | 56 | 54 | 47 |
| 16 | 49 | 53 | 141 | 64 | 529 | 70 | 187 | 195 | 84 | 55 | 54 | 46 |
| 17 | 49 | 53 | 141 | 67 | 523 | 72 | 68 | 302 | 98 | 54 | 53 | 45 |
| 18 | 49 | 53 | 233 | 147 | 258 | 72 | 67 | 193 | 48 | 51 | 155 | 46 |
| 19 | 49 | 631 | 340 | 282 | 70 | 70 | 70 | 69 | 47 | 49 | 1540 | 48 |
| 20 | 50 | 218 | 336 | 369 | 140 | 74 | 70 | 59 | 46 | 51 | 1730 | 47 |
| 21 | 50 | 131 | 334 | 354 | 133 | 72 | 183 | 58 | 46 | 51 | 1720 | 46 |
| 22 | 51 | 130 | 334 | 236 | 254 | 307 | 118 | 55 | 45 | 50 | 1870 | 46 |
| 23 | 164 | 81 | 140 | 63 | 355 | 616 | 60 | 56 | 44 | 51 | 300 | 47 |
| 24 | 596 | 55 | 67 | 63 | 376 | 609 | 60 | 371 | 44 | 49 | 74 | 46 |
| 25 | 84 | 55 | 69 | 68 | 383 | 577 | 62 | 634 | 45 | 48 | 417 | 45 |
| 26 | 60 | 55 | 69 | 75 | 493 | 179 | 62 | 248 | 47 | 50 | 320 | 715 |
| 27 | 56 | 56 | 69 | 67 | 175 | 75 | 61 | 57 | 45 | 50 | 151 | 636 |
| 28 | 57 | 377 | 70 | 67 | 175 | 76 | 61 | 78 | 44 | 49 | 47 | 43 |
| 29 | 58 | 2120 | 71 | 68 | --- | 177 | 60 | 457 | 45 | 49 | 47 | 44 |
| 30 | 57 | 1060 | 235 | 68 | --- | 584 | 59 | 81 | 44 | 45 | 47 | 43 |
| 31 | 57 | --- | 310 | 471 | --- | 404 | --- | 50 | --- | 49 | 49 | --- |
| TOTAL | 3677 | 6069 | 7272 | 9519 | 18225 | 6120 | 2474 | 4647 | 4529 | 1541 | 9337 | 2651 |
| MEAN | 119 | 202 | 235 | 307 | 651 | 197 | 82.5 | 150 | 151 | 49.7 | 301 | 88.4 |
| MAX | 661 | 2120 | 764 | 786 | 2200 | 616 | 202 | 634 | 711 | 57 | 1870 | 715 |
| MIN | 47 | 50 | 67 | 63 | 68 | 59 | 59 | 50 | 44 | 44 | 47 | 43 |
| CFSM | .35 | .59 | .68 | .89 | 1.89 | .57 | .24 | .44 | .44 | .14 | .87 | .26 |
| IN. | .40 | .66 | .79 | 1.03 | 1.97 | .66 | .27 | .50 | .49 | .17 | 1.01 | .29 |

CAL YR 1984 TOTAL 182206 MEAN 498 MAX 7330 MIN 41 CFSM 1.45 IN. 19.70
WTR YR 1985 TOTAL 76061 MEAN 208 MAX 2200 MIN 43 CFSM .60 IN. 8.23

## 01671000 NORTH ANNA RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°53'15", long 77°29'15", Caroline County, Hydrologic Unit 02080106, on left bank 1.5 mi upstream from bridge on U.S. Highway 1, 2.5 mi northwest of Doswell, and 4.4 mi upstream from Bull Run.

DRAINAGE AREA.--441 mi$^2$.

PERIOD OF RECORD.--March 1926 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "near Hewlett," 1926-28.

REVISED RECORDS.--WSP 1171: 1943: WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.66 ft above National Geodetic Vertical Datum of 1929. Mar. 23, 1926, to Aug. 11, 1928, nonrecording gage at site 10.2 mi upstream at different datum. Mar. 17, 1929, to Nov. 7, 1930, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Dec. 13 to Jan. 25, Mar. 16-19, and Sept. 2-30. Records good except those for periods of doubtful or no gage-height record, Dec. 13 to Jan. 25, Mar. 16-19, and Sept. 2-30, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 20.5 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--59 years, 386 ft$^3$/s, 11.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft$^3$/s, Aug. 21, 1969, gage height, 32.60 ft; maximum gage height, 33.7 ft, Aug. 12, 1928, from floodmarks, present site and datum; minimum discharge, 1.0 ft$^3$/s, Sept. 30, Oct. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,650 ft$^3$/s, Aug. 19, gage height, 13.11 ft; minimum daily, 53 ft$^3$/s, Sept. 19.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 391 | 87 | 356 | 314 | 934 | 253 | 304 | 83 | 80 | 66 | 62 | 80 |
| 2 | 802 | 86 | 338 | 318 | 2250 | 205 | 142 | 83 | 79 | 65 | 65 | 76 |
| 3 | 385 | 84 | 404 | 642 | 2380 | 334 | 114 | 272 | 78 | 62 | 61 | 74 |
| 4 | 132 | 84 | 338 | 886 | 2110 | 217 | 108 | 506 | 76 | 60 | 58 | 70 |
| 5 | 87 | 231 | 270 | 937 | 1090 | 322 | 107 | 172 | 91 | 60 | 58 | 68 |
| 6 | 83 | 188 | 737 | 885 | 675 | 344 | 104 | 110 | 346 | 61 | 59 | 64 |
| 7 | 80 | 142 | 869 | 824 | 568 | 195 | 104 | 93 | 735 | 59 | 60 | 62 |
| 8 | 78 | 107 | 427 | 769 | 248 | 126 | 105 | 80 | 474 | 57 | 67 | 61 |
| 9 | 76 | 94 | 239 | 696 | 169 | 128 | 104 | 76 | 144 | 57 | 66 | 62 |
| 10 | 76 | 88 | 217 | 525 | 140 | 128 | 104 | 75 | 99 | 58 | 60 | 61 |
| 11 | 76 | 94 | 212 | 301 | 134 | 128 | 105 | 74 | 120 | 59 | 59 | 60 |
| 12 | 78 | 99 | 207 | 217 | 912 | 163 | 107 | 74 | 439 | 60 | 60 | 59 |
| 13 | 76 | 94 | 204 | 209 | 2250 | 227 | 108 | 79 | 695 | 76 | 59 | 58 |
| 14 | 76 | 93 | 200 | 204 | 2010 | 138 | 110 | 86 | 648 | 75 | 57 | 56 |
| 15 | 75 | 87 | 197 | 158 | 592 | 121 | 143 | 130 | 148 | 112 | 57 | 55 |
| 16 | 75 | 86 | 195 | 132 | 600 | 119 | 241 | 174 | 80 | 99 | 58 | 55 |
| 17 | 76 | 86 | 195 | 129 | 585 | 115 | 172 | 270 | 136 | 75 | 59 | 55 |
| 18 | 76 | 84 | 193 | 132 | 502 | 115 | 104 | 322 | 115 | 67 | 364 | 54 |
| 19 | 76 | 312 | 287 | 203 | 186 | 114 | 100 | 130 | 75 | 62 | 2820 | 53 |
| 20 | 76 | 486 | 332 | 332 | 158 | 114 | 100 | 94 | 72 | 60 | 1800 | 55 |
| 21 | 78 | 205 | 330 | 347 | 231 | 115 | 118 | 83 | 70 | 60 | 1670 | 55 |
| 22 | 79 | 174 | 339 | 337 | 229 | 140 | 222 | 86 | 69 | 61 | 1690 | 56 |
| 23 | 102 | 163 | 326 | 203 | 353 | 590 | 110 | 86 | 67 | 59 | 740 | 59 |
| 24 | 503 | 107 | 157 | 120 | 378 | 720 | 91 | 142 | 65 | 59 | 170 | 58 |
| 25 | 291 | 97 | 125 | 121 | 396 | 695 | 91 | 708 | 64 | 62 | 333 | 56 |
| 26 | 115 | 96 | 120 | 132 | 537 | 432 | 91 | 440 | 64 | 66 | 944 | 56 |
| 27 | 100 | 94 | 116 | 124 | 374 | 152 | 91 | 175 | 65 | 68 | 352 | 1010 |
| 28 | 91 | 118 | 116 | 123 | 270 | 128 | 90 | 88 | 64 | 66 | 140 | 230 |
| 29 | 91 | 1960 | 116 | 123 | --- | 130 | 90 | 325 | 62 | 68 | 100 | 88 |
| 30 | 91 | 1830 | 116 | 121 | --- | 472 | 84 | 234 | 62 | 67 | 89 | 78 |
| 31 | 88 | --- | 271 | 173 | --- | 560 | --- | 94 | --- | 62 | 82 | --- |
| TOTAL | 4579 | 7556 | 8549 | 10737 | 21261 | 7740 | 3664 | 5444 | 5382 | 2048 | 12319 | 2984 |
| MEAN | 148 | 252 | 276 | 346 | 759 | 250 | 122 | 176 | 179 | 66.1 | 397 | 99.5 |
| MAX | 802 | 1960 | 869 | 937 | 2380 | 720 | 304 | 708 | 735 | 112 | 2820 | 1010 |
| MIN | 75 | 84 | 116 | 120 | 134 | 114 | 84 | 74 | 62 | 57 | 57 | 53 |
| CFSM | .34 | .57 | .63 | .78 | 1.72 | .57 | .28 | .40 | .41 | .15 | .90 | .23 |
| IN. | .39 | .64 | .72 | .91 | 1.79 | .65 | .31 | .46 | .45 | .17 | 1.04 | .25 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 228357 | MEAN | 624 | MAX | 10900 | MIN | 67 | CFSM | 1.41 | IN. | 19.26 |
| WTR YR 1985 | TOTAL | 92263 | MEAN | 253 | MAX | 2820 | MIN | 53 | CFSM | .57 | IN. | 7.78 |

## 01671020 NORTH ANNA RIVER AT HART CORNER, NEAR DOSWELL, VA

**LOCATION.**--Lat 37°51'00", long 77°25'41", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 30, 0.3 mi west of Hart Corner, 2.1 mi east of Doswell, and 5.4 mi upstream from confluence with South Anna River.

**DRAINAGE AREA.**--463 $mi^2$.

**PERIOD OF RECORD.**--October 1979 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 43 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Jan. 21-23. Records good except those for period with ice effect, Jan. 21-23, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 27.7 mi upstream. About 3.0 $ft^3/s$ diverted since June 1975, by Hanover County Department of Public Utilities, 0.8 mi upstream. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--6 years, 386 $ft^3/s$, 11.32 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 11,100 $ft^3/s$, Mar. 30, 1984, gage height, 21.28 ft; minimum, 44 $ft^3/s$, Sept. 28, 1980.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 3,750 $ft^3/s$, Aug. 19, gage height, 15.06 ft; minimum daily, 55 $ft^3/s$, Sept. 19.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 288 | 95 | 612 | 345 | 880 | 264 | 388 | 84 | 84 | 67 | 67 | 86 |
| 2 | 783 | 94 | 438 | 349 | 2190 | 205 | 198 | 88 | 82 | 67 | 72 | 82 |
| 3 | 518 | 90 | 460 | 706 | 2830 | 352 | 133 | 171 | 80 | 67 | 68 | 80 |
| 4 | 198 | 88 | 446 | 974 | 2500 | 241 | 122 | 585 | 77 | 65 | 64 | 78 |
| 5 | 100 | 226 | 343 | 1030 | 1480 | 318 | 118 | 230 | 100 | 63 | 63 | 74 |
| 6 | 89 | 234 | 691 | 972 | 783 | 363 | 119 | 116 | 257 | 67 | 64 | 68 |
| 7 | 84 | 171 | 915 | 906 | 712 | 248 | 116 | 99 | 702 | 63 | 66 | 64 |
| 8 | 82 | 124 | 591 | 845 | 349 | 138 | 116 | 87 | 571 | 61 | 69 | 63 |
| 9 | 81 | 112 | 312 | 765 | 238 | 134 | 114 | 78 | 196 | 60 | 73 | 64 |
| 10 | 81 | 98 | 248 | 578 | 181 | 132 | 113 | 77 | 106 | 63 | 65 | 63 |
| 11 | 82 | 104 | 235 | 332 | 161 | 127 | 110 | 78 | 116 | 64 | 63 | 62 |
| 12 | 81 | 111 | 228 | 328 | 801 | 147 | 108 | 77 | 341 | 64 | 63 | 61 |
| 13 | 80 | 105 | 224 | 230 | 2390 | 230 | 108 | 80 | 693 | 75 | 63 | 59 |
| 14 | 81 | 101 | 220 | 224 | 2350 | 164 | 108 | 86 | 693 | 82 | 62 | 58 |
| 15 | 78 | 98 | 217 | 174 | 904 | 125 | 124 | 110 | 241 | 99 | 62 | 57 |
| 16 | 80 | 93 | 214 | 145 | 691 | 122 | 254 | 167 | 86 | 108 | 63 | 57 |
| 17 | 80 | 92 | 214 | 142 | 664 | 122 | 214 | 248 | 116 | 82 | 63 | 57 |
| 18 | 81 | 90 | 212 | 145 | 621 | 120 | 114 | 362 | 129 | 72 | 141 | 56 |
| 19 | 80 | 244 | 316 | 224 | 276 | 122 | 110 | 179 | 78 | 67 | 3030 | 55 |
| 20 | 82 | 610 | 365 | 366 | 187 | 119 | 106 | 102 | 76 | 63 | 3080 | 57 |
| 21 | 82 | 257 | 363 | 377 | 242 | 120 | 105 | 87 | 73 | 62 | 2570 | 57 |
| 22 | 83 | 194 | 372 | 363 | 237 | 123 | 216 | 86 | 72 | 63 | 2260 | 57 |
| 23 | 112 | 184 | 358 | 226 | 386 | 523 | 144 | 92 | 69 | 60 | 1730 | 61 |
| 24 | 481 | 137 | 174 | 132 | 438 | 754 | 98 | 116 | 67 | 60 | 429 | 60 |
| 25 | 453 | 110 | 137 | 132 | 460 | 742 | 95 | 628 | 67 | 62 | 241 | 57 |
| 26 | 158 | 106 | 132 | 137 | 545 | 568 | 95 | 534 | 64 | 75 | 1180 | 58 |
| 27 | 118 | 104 | 128 | 133 | 493 | 212 | 94 | 244 | 67 | 70 | 621 | 1180 |
| 28 | 111 | 127 | 128 | 128 | 287 | 146 | 94 | 100 | 66 | 74 | 244 | 252 |
| 29 | 104 | 1800 | 128 | 128 | --- | 142 | 93 | 230 | 66 | 75 | 124 | 92 |
| 30 | 101 | 2240 | 127 | 127 | --- | 414 | 88 | 332 | 66 | 76 | 104 | 82 |
| 31 | 96 | --- | 300 | 141 | --- | 650 | --- | 120 | --- | 72 | 92 | --- |
| TOTAL | 5008 | 8239 | 9848 | 11804 | 24276 | 8187 | 4015 | 5673 | 5501 | 2168 | 16956 | 3257 |
| MEAN | 162 | 275 | 318 | 381 | 867 | 264 | 134 | 183 | 183 | 69.9 | 547 | 109 |
| MAX | 783 | 2240 | 915 | 1030 | 2830 | 754 | 388 | 628 | 702 | 108 | 3080 | 1180 |
| MIN | 78 | 88 | 127 | 127 | 161 | 119 | 88 | 77 | 64 | 60 | 62 | 55 |
| CFSM | .35 | .59 | .69 | .82 | 1.07 | .57 | .29 | .40 | .40 | .15 | 1.18 | .24 |
| IN. | .40 | .66 | .79 | .95 | 1.95 | .66 | .32 | .46 | .44 | .17 | 1.36 | .26 |

CAL YR 1984 TOTAL 246091 MEAN 672 MAX 10600 MIN 70 CFSM 1.45 IN. 19.77
WTR YR 1985 TOTAL 104932 MEAN 287 MAX 3080 MIN 55 CFSM .62 IN. 8.43

## 01671100 LITTLE RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°52'21", long 77°30'48", Hanover County, Hydrologic Unit 02080106, on left bank at downstream side of bridge on State Highway 685, 0.8 mi southwest of Verdon, 2.9 mi west of Doswell, and 9.6 mi upstream from mouth.

DRAINAGE AREA.--107 mi².

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 132.30 ft above National Geodetic Vertical Datum of 1929 (levels by La Prade Bros., Engineers).

REMARKS.--Estimated daily discharges: Jan. 16 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 16 and Feb. 9, 10, which are fair. Frequent quarry dewatering by the General Crushed Stone Company upstream from gage adds about 0.5 ft³/s at times. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--24 years, 99.0 ft³/s, 12.56 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s, Aug. 21, 1969, gage height, 11.09 ft, from rating curve extended above 7,600 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 0.10 ft³/s, Sept. 25, 26, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 650 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 3 | 1200 | 680 | 4.40 | Aug. 27 | 0600 | 752 | 4.53 |
| Aug. 19 | 2330 | *3,240 | *6.98 | | | | |

Minimum discharge, 2.9 ft³/s, Aug. 17, gage height, 1.83 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 61 | 34 | 282 | 60 | 142 | 93 | 94 | 24 | 26 | 5.5 | 6.7 | 36 |
| 2 | 96 | 32 | 157 | 65 | 455 | 82 | 83 | 23 | 22 | 5.5 | 8.5 | 29 |
| 3 | 99 | 31 | 113 | 87 | 660 | 74 | 76 | 26 | 20 | 5.2 | 8.7 | 24 |
| 4 | 83 | 30 | 93 | 191 | 472 | 70 | 67 | 29 | 18 | 4.3 | 7.8 | 21 |
| 5 | 58 | 98 | 80 | 267 | 246 | 68 | 57 | 32 | 22 | 4.0 | 7.0 | 20 |
| 6 | 42 | 88 | 145 | 254 | 176 | 66 | 51 | 33 | 28 | 4.4 | 6.2 | 18 |
| 7 | 34 | 87 | 187 | 198 | 149 | 60 | 49 | 31 | 27 | 4.1 | 5.7 | 17 |
| 8 | 28 | 89 | 177 | 153 | 130 | 56 | 49 | 27 | 31 | 3.9 | 6.0 | 16 |
| 9 | 24 | 65 | 134 | 122 | 100 | 59 | 47 | 23 | 29 | 3.5 | 7.3 | 14 |
| 10 | 22 | 52 | 107 | 100 | 90 | 59 | 45 | 20 | 28 | 3.5 | 6.7 | 13 |
| 11 | 20 | 48 | 93 | 88 | 86 | 61 | 45 | 20 | 30 | 3.8 | 5.6 | 12 |
| 12 | 20 | 49 | 79 | 81 | 245 | 61 | 45 | 18 | 28 | 4.2 | 4.9 | 11 |
| 13 | 20 | 47 | 71 | 77 | 449 | 60 | 45 | 19 | 27 | 5.7 | 4.2 | 9.8 |
| 14 | 20 | 44 | 69 | 72 | 350 | 58 | 45 | 18 | 23 | 10 | 4.0 | 8.6 |
| 15 | 18 | 41 | 65 | 71 | 209 | 55 | 47 | 17 | 20 | 9.9 | 3.4 | 8.3 |
| 16 | 18 | 39 | 63 | 63 | 151 | 52 | 49 | 17 | 19 | 12 | 3.1 | 8.3 |
| 17 | 18 | 37 | 60 | 62 | 127 | 50 | 50 | 20 | 18 | 14 | 2.9 | 8.0 |
| 18 | 18 | 35 | 59 | 64 | 115 | 49 | 48 | 21 | 17 | 22 | 93 | 7.4 |
| 19 | 18 | 53 | 59 | 65 | 107 | 45 | 45 | 21 | 17 | 18 | 1730 | 7.0 |
| 20 | 19 | 77 | 64 | 69 | 102 | 45 | 41 | 19 | 15 | 13 | 2300 | 6.2 |
| 21 | 20 | 77 | 71 | 65 | 96 | 44 | 39 | 18 | 13 | 10 | 838 | 5.8 |
| 22 | 20 | 74 | 73 | 63 | 89 | 48 | 37 | 17 | 12 | 8.5 | 418 | 5.7 |
| 23 | 36 | 63 | 71 | 57 | 84 | 67 | 34 | 17 | 10 | 7.4 | 295 | 6.2 |
| 24 | 87 | 56 | 66 | 57 | 84 | 106 | 32 | 24 | 9.5 | 6.0 | 151 | 6.2 |
| 25 | 136 | 51 | 62 | 61 | 83 | 117 | 31 | 44 | 12 | 5.8 | 100 | 5.5 |
| 26 | 120 | 47 | 56 | 66 | 85 | 101 | 30 | 74 | 6.7 | 7.9 | 323 | 6.0 |
| 27 | 79 | 45 | 53 | 64 | 95 | 83 | 28 | 78 | 5.8 | 8.1 | 627 | 42 |
| 28 | 58 | 56 | 52 | 66 | 96 | 70 | 28 | 52 | 5.4 | 7.4 | 242 | 58 |
| 29 | 49 | 328 | 51 | 64 | --- | 64 | 27 | 44 | 5.3 | 8.0 | 108 | 47 |
| 30 | 41 | 411 | 51 | 63 | --- | 78 | 25 | 36 | 5.5 | 7.3 | 63 | 28 |
| 31 | 37 | --- | 52 | 64 | --- | 83 | --- | 29 | --- | 7.0 | 46 | --- |
| TOTAL | 1419 | 2284 | 2815 | 2899 | 5273 | 2084 | 1389 | 891 | 550.2 | 239.9 | 7432.7 | 505.0 |
| MEAN | 45.8 | 76.1 | 90.8 | 93.5 | 188 | 67.2 | 46.3 | 28.7 | 18.3 | 7.74 | 240 | 16.8 |
| MAX | 136 | 411 | 282 | 267 | 660 | 117 | 94 | 78 | 31 | 22 | 2300 | 58 |
| MIN | 18 | 30 | 51 | 57 | 83 | 44 | 25 | 17 | 5.3 | 3.5 | 2.9 | 5.5 |
| CFSM | .43 | .71 | .85 | .87 | 1.76 | .63 | .43 | .27 | .17 | .07 | 2.24 | .16 |
| IN. | .49 | .79 | .98 | 1.01 | 1.83 | .72 | .48 | .31 | .19 | .08 | 2.58 | .18 |

CAL YR 1984 TOTAL 53450 MEAN 146 MAX 2750 MIN 11 CFSM 1.36 IN. 18.58
WTR YR 1985 TOTAL 27781.8 MEAN 76.1 MAX 2300 MIN 2.9 CFSM .71 IN. 9.66

## 01672500 SOUTH ANNA RIVER NEAR ASHLAND, VA

**LOCATION.**--Lat 37°47'48", long 77°32'57", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 54, 4.5 mi northwest of Ashland, and 7.6 mi upstream from Newfound River.

**DRAINAGE AREA.**--394 mi².

**PERIOD OF RECORD.**--October 1930 to current year.

**REVISED RECORDS.**--WSP 801: 1935(M). WSP 1502: 1935, 1939. WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 83.74 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 20-28. Records good except those for period with ice effect, Jan. 20-28, which are fair. Since 1966, diversion 150 ft upstream from station for town of Ashland water supply has averaged less than 0.6 ft³/s. Capacity of the diversion pickup is about 1.5 ft³/s. Small diurnal fluctuation at low flow in some years caused by gristmills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--55 years, 367 ft³/s, 12.65 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 17,100 ft³/s, Aug. 23, 1969, gage height, 24.99 ft; minimum, 0.10 ft³/s, Sept. 12, 1966, caused by diversion upstream from station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Aug. 15, 1928, reached a stage of about 24 ft, discharge, about 14,500 ft³/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,200 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 2100 | *8,720 | *18.55 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 28 ft³/s, Aug. 17, gage height, 1.39 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 167 | 119 | 631 | 209 | 624 | 298 | 292 | 92 | 104 | 39 | 71 | 176 |
| 2 | 292 | 113 | 385 | 230 | 1620 | 268 | 255 | 90 | 93 | 44 | 60 | 151 |
| 3 | 271 | 103 | 310 | 321 | 2060 | 252 | 236 | 103 | 87 | 50 | 53 | 135 |
| 4 | 189 | 99 | 274 | 745 | 1910 | 241 | 218 | 140 | 84 | 44 | 49 | 122 |
| 5 | 136 | 228 | 251 | 1070 | 814 | 236 | 203 | 231 | 107 | 40 | 44 | 114 |
| 6 | 109 | 373 | 532 | 890 | 580 | 229 | 188 | 163 | 300 | 37 | 42 | 101 |
| 7 | 94 | 231 | 690 | 761 | 487 | 219 | 177 | 126 | 406 | 33 | 40 | 91 |
| 8 | 88 | 164 | 534 | 546 | 409 | 213 | 176 | 105 | 250 | 31 | 37 | 84 |
| 9 | 82 | 136 | 370 | 417 | 332 | 221 | 174 | 92 | 173 | 32 | 73 | 78 |
| 10 | 81 | 122 | 303 | 337 | 295 | 218 | 169 | 83 | 134 | 48 | 57 | 73 |
| 11 | 79 | 126 | 270 | 298 | 287 | 212 | 167 | 77 | 464 | 69 | 50 | 69 |
| 12 | 76 | 142 | 252 | 276 | 694 | 214 | 165 | 73 | 224 | 74 | 45 | 65 |
| 13 | 75 | 139 | 236 | 258 | 1360 | 205 | 163 | 72 | 155 | 238 | 44 | 59 |
| 14 | 71 | 128 | 227 | 246 | 1560 | 202 | 165 | 136 | 138 | 1120 | 40 | 55 |
| 15 | 71 | 120 | 211 | 239 | 793 | 195 | 171 | 119 | 121 | 1110 | 34 | 51 |
| 16 | 72 | 111 | 206 | 220 | 550 | 186 | 176 | 85 | 94 | 633 | 30 | 55 |
| 17 | 71 | 105 | 196 | 213 | 442 | 184 | 175 | 84 | 84 | 327 | 28 | 56 |
| 18 | 72 | 103 | 192 | 220 | 383 | 182 | 165 | 100 | 78 | 212 | 341 | 53 |
| 19 | 73 | 151 | 189 | 230 | 348 | 172 | 161 | 128 | 75 | 151 | 6710 | 49 |
| 20 | 74 | 231 | 184 | 234 | 326 | 169 | 144 | 140 | 67 | 114 | 7460 | 54 |
| 21 | 73 | 284 | 186 | 230 | 304 | 166 | 138 | 103 | 61 | 90 | 7680 | 56 |
| 22 | 74 | 224 | 207 | 210 | 288 | 176 | 132 | 83 | 57 | 81 | 6430 | 56 |
| 23 | 91 | 178 | 224 | 198 | 280 | 241 | 132 | 80 | 52 | 66 | 3580 | 57 |
| 24 | 485 | 159 | 216 | 195 | 275 | 445 | 120 | 126 | 49 | 57 | 1030 | 56 |
| 25 | 416 | 148 | 197 | 210 | 271 | 567 | 114 | 362 | 46 | 55 | 467 | 56 |
| 26 | 262 | 141 | 182 | 228 | 297 | 392 | 119 | 641 | 42 | 63 | 1320 | 58 |
| 27 | 187 | 136 | 171 | 222 | 336 | 309 | 128 | 342 | 38 | 58 | 1090 | 216 |
| 28 | 153 | 183 | 166 | 231 | 349 | 263 | 126 | 209 | 36 | 62 | 536 | 166 |
| 29 | 137 | 1270 | 165 | 218 | --- | 258 | 115 | 164 | 37 | 78 | 353 | 117 |
| 30 | 130 | 1280 | 166 | 191 | --- | 355 | 103 | 142 | 35 | 119 | 261 | 109 |
| 31 | 119 | --- | 181 | 215 | --- | 393 | --- | 120 | --- | 85 | 208 | --- |
| TOTAL | 4370 | 7047 | 8504 | 10308 | 18274 | 7881 | 4967 | 4611 | 3691 | 5260 | 38263 | 2638 |
| MEAN | 141 | 235 | 274 | 333 | 653 | 254 | 166 | 149 | 123 | 170 | 1234 | 87.9 |
| MAX | 485 | 1280 | 690 | 1070 | 2060 | 567 | 292 | 641 | 464 | 1120 | 7680 | 216 |
| MIN | 71 | 99 | 165 | 191 | 271 | 166 | 103 | 72 | 35 | 31 | 28 | 49 |
| CFSM | .36 | .60 | .70 | .85 | 1.66 | .64 | .42 | .38 | .31 | .43 | 3.13 | .22 |
| IN. | .41 | .67 | .80 | .97 | 1.73 | .74 | .47 | .44 | .35 | .50 | 3.61 | .25 |

CAL YR 1984 TOTAL 197702 MEAN 540 MAX 5120 MIN 50 CFSM 1.37 IN. 18.67
WTR YR 1985 TOTAL 115814 MEAN 317 MAX 7680 MIN 28 CFSM .80 IN. 10.93

## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA
(National stream-quality accounting network station)

**LOCATION.**--Lat 37°46'03", long 77°19'57", Hanover County, Hydrologic Unit 02080106, on right bank 100 ft downstream from bridge on State Highway 614, 0.3 mi upstream from Mechumps Creek, 2.0 mi east of Hanover, and 7.0 mi upstream from Millpond Creek.

**DRAINAGE AREA.**--1,081 mi$^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1302.

**REVISED RECORDS.**--WSP 1302: 1944(M). WSP 1382: 1949. WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 14.72 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 15, 1976, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 20-26, Aug. 19, 20, 22-31, and Sept. 1-24. Records good except those for period with ice effect, Jan. 20-26, and periods of no gage-height record, Aug. 19, 20, 22-31 and Sept. 1-24, which are fair. Some regulation since January 1972 by Lake Anna, capacity, 373,000 acre-ft, and occasional diurnal fluctuation at low flow caused by mill upstream from station. Unknown amount of diversion for irrigation upstream from gage.

**AVERAGE DISCHARGE.**--44 years, 1,006 ft$^3$/s, 12.64 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 40,300 ft$^3$/s, Aug. 23, 1969, gage height, 31.12 ft, from floodmarks, from rating curve extended above 22,000 ft$^3$/s; minimum, 12 ft$^3$/s, Sept. 12, 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1928 reached a stage of 32.6 ft, from information by local residents.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 12,100 ft$^3$/s, Aug. 21, gage height, 22.04 ft; minimum, 103 ft$^3$/s, Aug. 17-18, gage height, 2.58 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 281 | 311 | 3590 | 706 | 1140 | 862 | 1100 | 270 | 295 | 122 | 212 | 400 |
| 2 | 1030 | 306 | 1570 | 747 | 3270 | 770 | 804 | 249 | 249 | 124 | 172 | 350 |
| 3 | 1230 | 289 | 1110 | 1020 | 4570 | 734 | 607 | 250 | 227 | 124 | 156 | 315 |
| 4 | 810 | 279 | 1060 | 1920 | 5400 | 760 | 551 | 635 | 212 | 124 | 143 | 285 |
| 5 | 466 | 342 | 913 | 2670 | 5570 | 684 | 512 | 731 | 234 | 123 | 135 | 265 |
| 6 | 336 | 827 | 1120 | 2780 | 3580 | 775 | 482 | 486 | 570 | 119 | 133 | 240 |
| 7 | 278 | 747 | 2040 | 2400 | 1910 | 737 | 448 | 358 | 1020 | 119 | 125 | 228 |
| 8 | 245 | 554 | 1900 | 2020 | 1330 | 574 | 440 | 296 | 1250 | 114 | 125 | 212 |
| 9 | 225 | 445 | 1260 | 1670 | 961 | 537 | 440 | 252 | 775 | 107 | 140 | 200 |
| 10 | 210 | 375 | 919 | 1400 | 792 | 538 | 427 | 228 | 412 | 106 | 128 | 190 |
| 11 | 204 | 348 | 812 | 1030 | 728 | 526 | 421 | 217 | 550 | 115 | 130 | 181 |
| 12 | 196 | 359 | 752 | 808 | 1260 | 523 | 418 | 212 | 856 | 130 | 129 | 172 |
| 13 | 193 | 369 | 712 | 747 | 3570 | 572 | 414 | 201 | 920 | 142 | 126 | 163 |
| 14 | 189 | 357 | 683 | 720 | 4440 | 584 | 412 | 200 | 957 | 789 | 122 | 155 |
| 15 | 191 | 342 | 656 | 684 | 4310 | 505 | 424 | 257 | 795 | 1280 | 115 | 148 |
| 16 | 191 | 322 | 634 | 584 | 2240 | 474 | 522 | 276 | 333 | 1300 | 111 | 150 |
| 17 | 188 | 304 | 623 | 560 | 1580 | 463 | 599 | 312 | 238 | 643 | 106 | 151 |
| 18 | 185 | 294 | 610 | 566 | 1410 | 448 | 494 | 440 | 259 | 420 | 140 | 144 |
| 19 | 185 | 335 | 621 | 598 | 1130 | 440 | 421 | 481 | 238 | 298 | 825 | 139 |
| 20 | 184 | 895 | 719 | 680 | 829 | 429 | 399 | 331 | 191 | 241 | 8320 | 147 |
| 21 | 187 | 879 | 730 | 630 | 788 | 418 | 374 | 278 | 177 | 192 | 11900 | 146 |
| 22 | 189 | 699 | 758 | 605 | 790 | 420 | 396 | 224 | 164 | 169 | 11500 | 145 |
| 23 | 197 | 584 | 793 | 580 | 820 | 644 | 447 | 215 | 159 | 161 | 10200 | 144 |
| 24 | 643 | 516 | 715 | 570 | 928 | 1250 | 345 | 240 | 152 | 143 | 5300 | 142 |
| 25 | 1460 | 423 | 547 | 575 | 944 | 1590 | 316 | 675 | 142 | 130 | 1700 | 141 |
| 26 | 921 | 391 | 496 | 540 | 977 | 1460 | 306 | 1410 | 135 | 141 | 3000 | 139 |
| 27 | 611 | 378 | 470 | 511 | 1200 | 968 | 304 | 1110 | 128 | 145 | 3300 | 1150 |
| 28 | 464 | 382 | 457 | 522 | 958 | 682 | 306 | 601 | 127 | 145 | 1900 | 1420 |
| 29 | 391 | 2020 | 451 | 506 | --- | 606 | 300 | 410 | 123 | 172 | 1200 | 453 |
| 30 | 362 | 4060 | 450 | 486 | --- | 705 | 288 | 658 | 123 | 218 | 700 | 300 |
| 31 | 335 | --- | 514 | 503 | --- | 1240 | --- | 448 | --- | 220 | 475 | --- |
| TOTAL | 12777 | 18732 | 28685 | 30338 | 57425 | 21918 | 13717 | 12951 | 12011 | 8376 | 62768 | 8415 |
| MEAN | 412 | 624 | 925 | 979 | 2051 | 707 | 457 | 418 | 400 | 270 | 2025 | 281 |
| MAX | 1460 | 4060 | 3590 | 2780 | 5570 | 1590 | 1100 | 1410 | 1250 | 1300 | 11900 | 1420 |
| MIN | 184 | 279 | 450 | 486 | 728 | 418 | 288 | 200 | 123 | 106 | 106 | 139 |
| CFSM | .38 | .58 | .86 | .91 | 1.90 | .65 | .42 | .39 | .37 | .25 | 1.87 | .26 |
| IN. | .44 | .64 | .99 | 1.04 | 1.98 | .75 | .47 | .45 | .41 | .29 | 2.16 | .29 |

CAL YR 1984 TOTAL 598341 MEAN 1635 MAX 14500 MIN 149 CFSM 1.51 IN. 20.59
WTR YR 1985 TOTAL 288113 MEAN 789 MAX 11900 MIN 106 CFSM .73 IN. 9.91

## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976.
WATER TEMPERATURE: October 1945 to September 1946, April 1968 to January 1976.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 17... | 12:30 | 189 | 142 | 132 | 7.0 | 7.1 | 16.5 | 772 | 1.5 | 7.9 | 80 | -- |
| NOV | | | | | | | | | | | | |
| 14... | 09:00 | 358 | 100 | 94 | 6.7 | 7.0 | 6.5 | 763 | 5.3 | 11.6 | 94 | 48 |
| DEC | | | | | | | | | | | | |
| 12... | 10:30 | 756 | 78 | 75 | 6.6 | 6.8 | 5.0 | 767 | 6.0 | 11.5 | 89 | -- |
| JAN | | | | | | | | | | | | |
| 09... | 11:00 | 1690 | 70 | 64 | 6.3 | 6.9 | 5.5 | 767 | 12 | 12.4 | 98 | 270 |
| FEB | | | | | | | | | | | | |
| 21... | 08:45 | 770 | 78 | 79 | 7.1 | 6.9 | 4.0 | 770 | 7.0 | 12.4 | 94 | 24 |
| MAR | | | | | | | | | | | | |
| 12... | 11:00 | 523 | 70 | 73 | 6.7 | 6.9 | 9.5 | 754 | 3.0 | 10.9 | 96 | -- |
| APR | | | | | | | | | | | | |
| 16... | 07:15 | 456 | 110 | 112 | 6.9 | 7.1 | 14.0 | 752 | 4.5 | 8.6 | 85 | 280 |
| MAY | | | | | | | | | | | | |
| 29... | 09:00 | 406 | 100 | 100 | 6.6 | 6.8 | 21.0 | 751 | 5.3 | 7.0 | 80 | -- |
| JUN | | | | | | | | | | | | |
| 13... | 13:15 | 976 | 62 | 61 | 6.9 | 6.8 | 23.5 | 750 | 14 | 6.8 | 81 | 120 |
| JUL | | | | | | | | | | | | |
| 10... | 10:30 | 105 | 220 | 217 | 7.0 | 7.1 | 25.0 | 750 | 1.1 | 6.3 | 78 | -- |
| AUG | | | | | | | | | | | | |
| 21... | 14:00 | 12100 | 39 | 38 | 6.1 | 6.3 | 23.0 | 754 | 20 | 5.6 | 66 | 230 |
| SEP | | | | | | | | | | | | |
| 23... | 10:45 | 144 | 188 | 184 | 7.2 | 7.2 | 20.0 | 756 | 2.0 | 8.0 | 89 | -- |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | ALKA-LINITY FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | 27 | -- | -- | -- | -- |
| NOV | | | | | | | | | | | | |
| 14... | 150 | 25 | 25 | 5.9 | 2.5 | 8.5 | 2.4 | 25 | 24 | 14 | 4.8 | <0.1 |
| DEC | | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 17 | -- | -- | -- | -- |
| JAN | | | | | | | | | | | | |
| 09... | 290 | 17 | 17 | 3.6 | 2.0 | 4.5 | 1.8 | 12 | 15 | 10 | 3.8 | <0.1 |
| FEB | | | | | | | | | | | | |
| 21... | 33 | 20 | 20 | 4.7 | 2.1 | 6.1 | 1.6 | 16 | 18 | 13 | 4.7 | <0.1 |
| MAR | | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 21 | -- | -- | -- | -- |
| APR | | | | | | | | | | | | |
| 16... | 29 | 26 | 26 | 6.2 | 2.5 | 10 | 2.1 | 25 | 23 | 19 | 5.2 | 0.2 |
| MAY | | | | | | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- | 21 | -- | -- | -- | -- |
| JUN | | | | | | | | | | | | |
| 13... | 100 | 18 | 18 | 3.8 | 2.1 | 3.9 | 1.9 | 15 | 15 | 8.4 | 3.6 | <0.1 |
| JUL | | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 39 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 21... | 500 | 11 | 11 | 2.6 | 1.1 | 2.0 | 2.2 | 8.0 | 7 | 6.4 | 2.1 | <0.1 |
| SEP | | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | 35 | -- | -- | -- | -- |

## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | PHOS- PHORUS, DIS- SOLVED (MG/L AS P) | PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) | ALUM- INUM, DIS- SOLVED (UG/L AS AL) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 13 | -- | -- | <0.01 | 0.13 | <0.01 | 0.6 | 0.05 | 0.03 | 0.03 | -- |
| NOV 14... | 14 | 70 | 68 | <0.01 | <0.10 | 0.12 | 0.4 | 0.02 | 0.01 | 0.01 | 50 |
| DEC 12... | 14 | -- | -- | <0.01 | 0.18 | <0.01 | 0.5 | <0.01 | <0.01 | <0.01 | -- |
| JAN 09... | 11 | 51 | 46 | 0.02 | 0.14 | 0.03 | 0.4 | 0.04 | 0.02 | <0.01 | -- |
| FEB 21... | 12 | 55 | 55 | <0.01 | 0.25 | 0.04 | 0.4 | 0.06 | <0.01 | -- | 40 |
| MAR 12... | 13 | -- | -- | <0.01 | 0.12 | 0.03 | 0.3 | 0.02 | 0.02 | 0.02 | -- |
| APR 16... | 9.7 | 74 | 69 | <0.01 | <0.10 | 0.05 | 0.4 | 0.03 | 0.03 | 0.01 | 20 |
| MAY 29... | 13 | -- | -- | <0.01 | 0.30 | 0.02 | 0.3 | 0.01 | <0.01 | 0.01 | -- |
| JUN 13... | 10 | 38 | 43 | <0.01 | 0.30 | 0.03 | 0.8 | 0.04 | 0.02 | 0.03 | -- |
| JUL 10... | 5.7 | -- | -- | 0.01 | 0.14 | <0.01 | 0.4 | 0.01 | <0.01 | <0.01 | -- |
| AUG 21... | 5.4 | 28 | 27 | <0.01 | 0.11 | 0.03 | 0.6 | 0.06 | 0.04 | <0.01 | 90 |
| SEP 23... | 11 | -- | -- | <0.01 | 0.33 | <0.01 | 0.5 | 0.07 | 0.07 | 0.05 | -- |

| DATE | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) | LITHIUM DIS- SOLVED (UG/L AS LI) | MANGA- NESE, DIS- SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV 14... | <1 | 22 | <0.5 | 2 | <1 | <3 | 1 | 750 | 1 | <4 | 50 |
| DEC 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 21... | <1 | 27 | <0.5 | <1 | <1 | <3 | 2 | 260 | <1 | 12 | 31 |
| MAR 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR 16... | <1 | 25 | <0.5 | <1 | <1 | <3 | 2 | 400 | 2 | 6 | 49 |
| MAY 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 21... | <1 | 86 | <0.5 | 1 | <1 | <3 | 5 | 490 | 8 | <4 | 77 |
| SEP 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRON-TIUM, DIS-SOLVED (UG/L AS SR) | VANA-DIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | 4.3 | 3 | 89 |
| NOV | | | | | | | | | | | |
| 14... | <0.1 | <10 | 1 | <1 | <1 | 37 | <6 | 7 | 6.0 | 4 | 77 |
| DEC | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 11 | 92 |
| JAN | | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | 4.1 | 34 | 45 |
| FEB | | | | | | | | | | | |
| 21... | <0.1 | <10 | 1 | <1 | 1 | 32 | <6 | 23 | 3.4 | 11 | 92 |
| MAR | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | 4.8 | 6 | 69 |
| APR | | | | | | | | | | | |
| 16... | 0.3 | <10 | 1 | <1 | <1 | 40 | <6 | 13 | -- | 9 | 95 |
| MAY | | | | | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | 6.8 | 15 | 85 |
| JUN | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 52 | 91 |
| JUL | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | 9.1 | 2 | -- |
| AUG | | | | | | | | | | | |
| 21... | 0.2 | <10 | <1 | <1 | <1 | 19 | <6 | 36 | 13 | 20 | 96 |
| SEP | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | 8.4 | 5 | 84 |

## 01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA

**LOCATION.**--Lat 37°39'44" (corrected), long 77°15'29", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 606, 2.0 mi southeast of Studley, 2.4 mi downstream from Hawes millrace, and 4.1 mi upstream from mouth.

**DRAINAGE AREA.**--26.2 mi$^2$.

**PERIOD OF RECORD.**--October 1977 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 38.36 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 12, 16, 20-23 and Feb. 9, 10. Records good except those for period of no gage-height record, Jan. 20-22, and periods with ice effect, Jan. 12, 16, 23 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--8 years, 30.4 ft$^3$/s, 15.76 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 802 ft$^3$/s, Aug. 19, 1985, gage height, 8.22 ft; maximum gage height, 8.77 ft, Feb. 25, 1979; minimum daily discharge, 0.35 ft$^3$/s, Oct. 1-7, 1977.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 160 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 1830 | 173 | 5.36 | Sept. 28 | 0330 | 176 | 5.39 |
| Aug. 19 | 1500 | *802 | *8.22 | | | | |

Minimum daily discharge, 2.2 ft$^3$/s, June 27, 28.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 11 | 38 | 14 | 66 | 20 | 19 | 5.2 | 5.5 | 2.7 | 22 | 10 |
| 2 | 44 | 11 | 25 | 15 | 112 | 19 | 16 | 5.0 | 4.8 | 3.0 | 21 | 9.2 |
| 3 | 31 | 9.7 | 24 | 31 | 85 | 18 | 14 | 12 | 4.6 | 3.3 | 13 | 8.3 |
| 4 | 19 | 9.3 | 21 | 89 | 51 | 18 | 13 | 15 | 4.1 | 3.7 | 7.7 | 7.6 |
| 5 | 14 | 11 | 20 | 86 | 38 | 18 | 13 | 11 | 8.1 | 3.8 | 5.2 | 6.9 |
| 6 | 12 | 12 | 43 | 52 | 33 | 17 | 13 | 8.5 | 24 | 3.6 | 4.6 | 6.4 |
| 7 | 11 | 13 | 46 | 34 | 30 | 16 | 12 | 6.4 | 29 | 3.7 | 4.3 | 5.9 |
| 8 | 10 | 11 | 30 | 26 | 25 | 16 | 14 | 5.0 | 19 | 3.4 | 5.0 | 5.7 |
| 9 | 9.7 | 10 | 23 | 22 | 19 | 18 | 14 | 4.1 | 13 | 3.4 | 5.9 | 5.6 |
| 10 | 9.5 | 9.7 | 21 | 19 | 22 | 18 | 14 | 3.7 | 8.5 | 4.9 | 7.7 | 5.3 |
| 11 | 8.9 | 13 | 19 | 18 | 21 | 16 | 13 | 3.7 | 6.8 | 4.2 | 8.2 | 5.3 |
| 12 | 8.6 | 18 | 18 | 17 | 69 | 17 | 14 | 3.1 | 9.0 | 4.5 | 6.4 | 5.3 |
| 13 | 8.2 | 18 | 16 | 17 | 100 | 16 | 14 | 3.4 | 14 | 4.4 | 5.5 | 5.5 |
| 14 | 8.0 | 14 | 16 | 17 | 55 | 16 | 14 | 3.9 | 13 | 5.1 | 5.0 | 5.8 |
| 15 | 7.8 | 12 | 16 | 17 | 38 | 15 | 18 | 3.0 | 7.8 | 24 | 4.5 | 5.3 |
| 16 | 7.5 | 11 | 15 | 15 | 32 | 14 | 19 | 2.8 | 6.1 | 11 | 4.0 | 5.0 |
| 17 | 7.5 | 11 | 14 | 16 | 28 | 14 | 16 | 3.9 | 5.4 | 5.7 | 3.6 | 4.7 |
| 18 | 7.5 | 11 | 14 | 18 | 26 | 14 | 14 | 7.7 | 4.6 | 3.7 | 67 | 4.2 |
| 19 | 7.6 | 22 | 14 | 18 | 26 | 14 | 13 | 7.3 | 4.6 | 3.1 | 607 | 4.3 |
| 20 | 8.9 | 32 | 14 | 16 | 24 | 14 | 11 | 4.4 | 3.9 | 3.0 | 433 | 4.5 |
| 21 | 9.1 | 22 | 14 | 14 | 22 | 14 | 10 | 3.0 | 3.5 | 2.8 | 92 | 4.6 |
| 22 | 9.5 | 17 | 14 | 14 | 21 | 16 | 10 | 2.7 | 3.3 | 2.7 | 34 | 6.8 |
| 23 | 12 | 15 | 14 | 16 | 21 | 21 | 9.1 | 5.6 | 3.1 | 2.7 | 22 | 11 |
| 24 | 22 | 14 | 14 | 18 | 21 | 22 | 8.5 | 16 | 3.0 | 2.4 | 17 | 13 |
| 25 | 22 | 14 | 12 | 19 | 20 | 20 | 8.5 | 36 | 4.0 | 3.2 | 17 | 11 |
| 26 | 18 | 13 | 12 | 18 | 28 | 18 | 8.1 | 33 | 2.3 | 5.7 | 17 | 11 |
| 27 | 14 | 13 | 11 | 16 | 32 | 16 | 7.1 | 18 | 2.2 | 6.7 | 30 | 102 |
| 28 | 13 | 26 | 12 | 16 | 24 | 16 | 6.8 | 10 | 2.2 | 8.3 | 26 | 139 |
| 29 | 12 | 145 | 12 | 16 | --- | 17 | 6.2 | 7.1 | 2.5 | 12 | 19 | 33 |
| 30 | 11 | 89 | 12 | 17 | --- | 22 | 6.0 | 6.1 | 2.6 | 14 | 14 | 13 |
| 31 | 11 | --- | 14 | 19 | --- | 22 | --- | 5.8 | --- | 23 | 12 | --- |
| TOTAL | 426.3 | 637.7 | 588 | 740 | 1089 | 532 | 368.3 | 262.4 | 224.5 | 187.7 | 1540.6 | 465.2 |
| MEAN | 13.8 | 21.3 | 19.0 | 23.9 | 38.9 | 17.2 | 12.3 | 8.46 | 7.48 | 6.05 | 49.7 | 15.5 |
| MAX | 44 | 145 | 46 | 89 | 112 | 22 | 19 | 36 | 29 | 24 | 607 | 139 |
| MIN | 7.5 | 9.3 | 11 | 14 | 19 | 14 | 6.0 | 2.7 | 2.2 | 2.4 | 3.6 | 4.2 |
| CFSM | .53 | .81 | .73 | .91 | 1.48 | .66 | .47 | .32 | .29 | .23 | 1.90 | .59 |
| IN. | .61 | .91 | .83 | 1.05 | 1.55 | .76 | .52 | .37 | .32 | .27 | 2.19 | .66 |

CAL YR 1984 TOTAL 15950.3 MEAN 43.6 MAX 612 MIN 6.9 CFSM 1.66 IN. 22.65
WTR YR 1985 TOTAL 7061.7 MEAN 19.3 MAX 607 MIN 2.2 CFSM .74 IN. 10.03

## 01673800 PO RIVER NEAR SPOTSYLVANIA, VA

**LOCATION.**--Lat 38°10'17", long 77°35'42", Spotsylvania County, Hydrologic Unit 02080105, on right bank at upstream side of bridge on State Highway 208, 1.6 mi north of Snell, 2.0 mi south of Spotsylvania, 4.8 mi downstream from Gladys Run, and 4.9 mi upstream from U.S. Highway 1.

**DRAINAGE AREA.**--77.4 mi$^2$.

**PERIOD OF RECORD.**--October 1962 to current year.

**REVISED RECORDS.**--WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 183.76 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1964, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 20-24, 28-30. Records good except those for period of no gage-height record, Jan. 21-24, and periods with ice effect, Jan. 20, 28-30, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--23 years, 76.6 ft$^3$/s, 13.44 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 10,900 ft$^3$/s, June 22, 1972, gage height, 19.03 ft, from rating curve extended above 3,400 ft$^3$/s; minimum daily, 0.10 ft$^3$/s, Oct. 24-29, 1963, Sept. 6-13, 1966.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 900 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 13 | 1430 | *920 | *7.50 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 0.69 ft$^3$/s, Sept. 20, 21, 22.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 67 | 20 | 113 | 46 | 139 | 67 | 47 | 18 | 25 | 4.2 | 5.5 | 9.0 |
| 2 | 99 | 18 | 79 | 47 | 600 | 61 | 45 | 16 | 25 | 4.5 | 5.0 | 7.2 |
| 3 | 47 | 16 | 63 | 71 | 671 | 57 | 38 | 52 | 19 | 4.6 | 4.8 | 5.9 |
| 4 | 24 | 15 | 57 | 225 | 206 | 53 | 40 | 95 | 14 | 5.2 | 4.4 | 5.1 |
| 5 | 17 | 162 | 51 | 241 | 129 | 57 | 40 | 47 | 21 | 6.2 | 3.7 | 4.4 |
| 6 | 14 | 114 | 148 | 219 | 107 | 57 | 39 | 29 | 361 | 5.2 | 3.2 | 3.7 |
| 7 | 14 | 47 | 178 | 149 | 98 | 51 | 36 | 24 | 440 | 4.6 | 3.1 | 3.2 |
| 8 | 12 | 30 | 104 | 109 | 85 | 49 | 35 | 20 | 115 | 3.9 | 4.2 | 2.9 |
| 9 | 11 | 24 | 79 | 85 | 79 | 51 | 36 | 17 | 81 | 3.5 | 3.7 | 2.7 |
| 10 | 14 | 22 | 65 | 67 | 68 | 50 | 33 | 15 | 49 | 3.3 | 2.9 | 2.5 |
| 11 | 12 | 24 | 57 | 61 | 60 | 48 | 33 | 14 | 34 | 3.6 | 2.7 | 2.2 |
| 12 | 10 | 28 | 52 | 58 | 317 | 54 | 35 | 13 | 103 | 5.2 | 2.5 | 1.8 |
| 13 | 10 | 27 | 47 | 53 | 775 | 60 | 35 | 20 | 134 | 21 | 2.3 | 1.4 |
| 14 | 13 | 22 | 44 | 51 | 240 | 45 | 33 | 24 | 50 | 23 | 2.1 | 1.2 |
| 15 | 11 | 21 | 42 | 51 | 139 | 56 | 37 | 20 | 32 | 19 | 1.8 | 1.3 |
| 16 | 12 | 19 | 39 | 47 | 110 | 49 | 46 | 15 | 26 | 12 | 1.6 | 1.1 |
| 17 | 12 | 21 | 39 | 42 | 95 | 46 | 42 | 18 | 24 | 7.7 | 1.5 | .99 |
| 18 | 13 | 47 | 39 | 46 | 85 | 45 | 35 | 20 | 21 | 5.4 | 95 | .97 |
| 19 | 13 | 70 | 37 | 48 | 78 | 43 | 31 | 18 | 19 | 4.0 | 343 | .90 |
| 20 | 11 | 108 | 37 | 46 | 73 | 42 | 30 | 14 | 17 | 3.1 | 121 | .84 |
| 21 | 13 | 63 | 36 | 35 | 67 | 41 | 29 | 11 | 16 | 2.7 | 66 | .82 |
| 22 | 13 | 41 | 42 | 32 | 63 | 46 | 27 | 9.7 | 15 | 2.4 | 65 | .81 |
| 23 | 18 | 33 | 43 | 35 | 62 | 74 | 26 | 11 | 14 | 8.1 | 34 | .87 |
| 24 | 39 | 30 | 37 | 39 | 62 | 121 | 25 | 20 | 12 | 4.2 | 22 | 1.1 |
| 25 | 28 | 29 | 34 | 41 | 61 | 105 | 28 | 51 | 9.6 | 3.3 | 19 | .85 |
| 26 | 23 | 27 | 33 | 45 | 79 | 83 | 28 | 50 | 7.8 | 5.2 | 18 | 1.1 |
| 27 | 20 | 26 | 31 | 37 | 98 | 66 | 25 | 29 | 6.1 | 5.1 | 16 | 18 |
| 28 | 18 | 58 | 31 | 35 | 83 | 57 | 22 | 20 | 5.1 | 6.5 | 14 | 9.2 |
| 29 | 26 | 376 | 32 | 34 | --- | 53 | 21 | 16 | 4.5 | 9.1 | 11 | 7.1 |
| 30 | 29 | 311 | 32 | 34 | --- | 47 | 20 | 19 | 4.3 | 7.8 | 8.2 | 6.3 |
| 31 | 24 | --- | 37 | 37 | --- | 49 | --- | 24 | --- | 5.9 | 9.5 | --- |
| TOTAL | 687 | 1849 | 1758 | 2166 | 4729 | 1783 | 997 | 769.7 | 1704.4 | 209.5 | 896.7 | 105.45 |
| MEAN | 22.2 | 61.6 | 56.7 | 69.9 | 169 | 57.5 | 33.2 | 24.8 | 56.8 | 6.76 | 28.9 | 3.51 |
| MAX | 99 | 376 | 178 | 241 | 775 | 121 | 47 | 95 | 440 | 23 | 343 | 18 |
| MIN | 10 | 15 | 31 | 32 | 60 | 41 | 20 | 9.7 | 4.3 | 2.4 | 1.5 | .81 |
| CFSM | .29 | .80 | .73 | .90 | 2.18 | .74 | .43 | .32 | .73 | .09 | .37 | .05 |
| IN. | .33 | .89 | .84 | 1.04 | 2.27 | .86 | .48 | .37 | .82 | .10 | .43 | .05 |

CAL YR 1984 TOTAL 45057.7 MEAN 123 MAX 2770 MIN 6.0 CFSM 1.59 IN. 21.66
WTR YR 1985 TOTAL 17654.75 MEAN 48.4 MAX 775 MIN .81 CFSM .63 IN. 8.49

## 01674000 MATTAPONI RIVER NEAR BOWLING GREEN, VA

LOCATION.--Lat 38°03'42", long 77°23'10", Caroline County, Hydrologic Unit 02080105, on right bank 0.1 mi upstream from bridge on State Highway 605, 2.2 mi northwest of Bowling Green, 2.4 mi upstream from South River, and 7.1 mi downstream from confluence of Matta and Poni Rivers.

DRAINAGE AREA.--257 mi$^2$.

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1382: 1943, 1945(M), 1948(M), 1949, 1953(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 85.14 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1978, gage located on left bank at same datum.

REMARKS.--Estimated daily discharges: Jan. 16, 17, 21-24 and Feb. 5, 6. Records good except those for period of no gage-height record, Feb. 5, 6, and periods with ice effect, Jan. 16, 17, 21-24, which are fair. Some diurnal fluctuation from gristmill upstream on Po River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--43 years, 240 ft$^3$/s, 12.68 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft$^3$/s, June 23, 1972, gage height, 18.95 ft, from high-water mark in well, from rating curve extended above 8,100 ft$^3$/s; no flow at times in September and October 1954 and September 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 19.5 ft based on relative difference in stage between this flood and flood of Oct. 17, 1942, at Milford 4 mi downstream, discharge, 15,000 ft$^3$/s, from rating curve extended above 8,100 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 4 | 1700 | *1,680 | *9.24 | No peak equal to or greater than base discharge. | | | |

Minimum discharge, 3.9 ft$^3$/s, Aug. 17-18, gage height, 1.44 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 128 | 73 | 712 | 139 | 215 | 248 | 176 | 50 | 60 | 14 | 14 | 64 |
| 2 | 240 | 65 | 623 | 151 | 458 | 222 | 163 | 45 | 56 | 14 | 13 | 50 |
| 3 | 226 | 56 | 367 | 184 | 840 | 202 | 152 | 51 | 51 | 13 | 11 | 41 |
| 4 | 170 | 48 | 262 | 308 | 1590 | 187 | 143 | 95 | 43 | 13 | 8.9 | 34 |
| 5 | 110 | 126 | 221 | 451 | 1130 | 180 | 138 | 140 | 40 | 13 | 7.8 | 28 |
| 6 | 76 | 254 | 271 | 600 | 672 | 172 | 133 | 112 | 148 | 15 | 7.2 | 24 |
| 7 | 58 | 293 | 364 | 622 | 478 | 163 | 128 | 78 | 316 | 12 | 6.6 | 20 |
| 8 | 49 | 224 | 419 | 530 | 380 | 160 | 125 | 62 | 461 | 9.9 | 8.8 | 17 |
| 9 | 45 | 153 | 382 | 399 | 288 | 162 | 121 | 51 | 511 | 9.6 | 8.8 | 16 |
| 10 | 38 | 123 | 291 | 300 | 259 | 160 | 114 | 43 | 265 | 9.0 | 7.2 | 15 |
| 11 | 38 | 115 | 240 | 248 | 248 | 154 | 109 | 38 | 226 | 8.5 | 7.3 | 14 |
| 12 | 40 | 129 | 211 | 220 | 340 | 156 | 109 | 36 | 245 | 12 | 6.8 | 13 |
| 13 | 36 | 120 | 191 | 203 | 577 | 157 | 110 | 35 | 169 | 16 | 5.9 | 11 |
| 14 | 34 | 108 | 177 | 195 | 1260 | 155 | 108 | 42 | 204 | 22 | 5.5 | 9.3 |
| 15 | 33 | 97 | 165 | 186 | 1310 | 143 | 110 | 51 | 144 | 37 | 5.0 | 8.3 |
| 16 | 39 | 90 | 157 | 154 | 750 | 140 | 121 | 47 | 98 | 26 | 4.4 | 7.6 |
| 17 | 34 | 82 | 150 | 160 | 481 | 134 | 129 | 43 | 81 | 23 | 4.0 | 7.5 |
| 18 | 37 | 79 | 147 | 164 | 365 | 129 | 120 | 47 | 70 | 18 | 22 | 7.1 |
| 19 | 37 | 145 | 143 | 170 | 307 | 123 | 106 | 49 | 59 | 13 | 551 | 6.8 |
| 20 | 34 | 226 | 140 | 170 | 272 | 120 | 98 | 45 | 50 | 11 | 866 | 6.4 |
| 21 | 35 | 239 | 138 | 120 | 245 | 117 | 95 | 36 | 43 | 8.6 | 1210 | 6.3 |
| 22 | 31 | 210 | 144 | 120 | 229 | 121 | 93 | 29 | 42 | 7.1 | 638 | 6.4 |
| 23 | 41 | 165 | 145 | 130 | 217 | 177 | 85 | 30 | 35 | 8.4 | 268 | 7.7 |
| 24 | 76 | 141 | 141 | 138 | 212 | 257 | 80 | 39 | 33 | 8.2 | 148 | 9.3 |
| 25 | 114 | 128 | 134 | 159 | 215 | 297 | 75 | 80 | 37 | 11 | 134 | 8.2 |
| 26 | 102 | 119 | 129 | 166 | 224 | 287 | 74 | 113 | 31 | 12 | 461 | 8.2 |
| 27 | 92 | 112 | 121 | 156 | 268 | 237 | 72 | 105 | 22 | 12 | 594 | 117 |
| 28 | 77 | 118 | 116 | 151 | 272 | 202 | 67 | 73 | 19 | 12 | 291 | 198 |
| 29 | 73 | 294 | 116 | 145 | --- | 183 | 61 | 56 | 17 | 12 | 128 | 108 |
| 30 | 85 | 473 | 116 | 142 | --- | 193 | 53 | 46 | 15 | 14 | 87 | 65 |
| 31 | 82 | --- | 123 | 145 | --- | 188 | --- | 46 | --- | 15 | 71 | --- |
| TOTAL | 2310 | 4605 | 7056 | 7126 | 14102 | 5526 | 3268 | 1813 | 3591 | 429.3 | 5601.2 | 934.1 |
| MEAN | 74.5 | 154 | 228 | 230 | 504 | 178 | 109 | 58.5 | 120 | 13.8 | 181 | 31.1 |
| MAX | 240 | 473 | 712 | 622 | 1590 | 297 | 176 | 140 | 511 | 37 | 1210 | 198 |
| MIN | 31 | 48 | 116 | 120 | 212 | 117 | 53 | 29 | 15 | 7.1 | 4.0 | 6.3 |
| CFSM | .29 | .60 | .89 | .89 | 1.96 | .69 | .42 | .23 | .47 | .05 | .70 | .12 |
| IN. | .33 | .67 | 1.02 | 1.03 | 2.04 | .80 | .47 | .26 | .52 | .06 | .81 | .14 |

CAL YR 1984 TOTAL 135880 MEAN 371 MAX 7170 MIN 14 CFSM 1.44 IN. 19.67
WTR YR 1985 TOTAL 56361.6 MEAN 154 MAX 1590 MIN 4.0 CFSM .60 IN. 8.16

## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA
(National stream-quality accounting network station)

**LOCATION.**--Lat 37°53'16", long 77°09'48", King and Queen County, Hydrologic Unit 02080105, on left bank 0.4 mi upstream from bridge on State Highway 628, 2.4 mi north of Beulahville, and 2.7 mi downstream from Maracossic Creek.

**DRAINAGE AREA.**--601 mi².

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--September 1941 to current year.

**REVISED RECORDS.**--WSP 2103: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 12.43 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Oct. 14, 1942, nonrecording gage, and Oct. 14, 1942, to Aug. 8, 1974, water-stage recorder at site 80 ft upstream at same datum.

**REMARKS.**--No estimated daily discharges. Records good. Diurnal fluctuation at times during low flow caused by gristmill on Po River.

**AVERAGE DISCHARGE.**--44 years, 593 ft³/s, 13.40 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 16,900 ft³/s, June 25, 1972, gage height, 23.97 ft, from floodmarks; maximum gage height, 24.04 ft, Aug. 23, 1969; minimum discharge, 5.9 ft³/s, Sept. 14, 1966, gage height, 0.94 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 2,010 ft³/s, Feb. 8, gage height, 12.18 ft; minimum, 26 ft³/s, Aug. 16, gage height, 2.04 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 271 | 269 | 1010 | 360 | 516 | 627 | 476 | 156 | 152 | 51 | 143 | 250 |
| 2 | 456 | 257 | 1080 | 398 | 830 | 585 | 442 | 149 | 147 | 54 | 118 | 220 |
| 3 | 609 | 238 | 1120 | 506 | 1100 | 537 | 414 | 169 | 138 | 55 | 97 | 187 |
| 4 | 516 | 224 | 1090 | 723 | 1300 | 498 | 384 | 209 | 124 | 48 | 75 | 161 |
| 5 | 395 | 225 | 754 | 913 | 1420 | 472 | 366 | 221 | 129 | 42 | 60 | 137 |
| 6 | 306 | 277 | 691 | 1000 | 1590 | 451 | 349 | 244 | 352 | 38 | 48 | 116 |
| 7 | 246 | 429 | 800 | 1050 | 1880 | 434 | 338 | 243 | 544 | 38 | 41 | 103 |
| 8 | 208 | 470 | 878 | 1080 | 1980 | 414 | 336 | 202 | 694 | 38 | 40 | 93 |
| 9 | 185 | 439 | 873 | 1100 | 1660 | 430 | 328 | 164 | 673 | 36 | 69 | 83 |
| 10 | 171 | 355 | 828 | 981 | 906 | 444 | 316 | 138 | 677 | 34 | 69 | 74 |
| 11 | 167 | 309 | 730 | 737 | 660 | 433 | 304 | 132 | 608 | 30 | 61 | 68 |
| 12 | 163 | 315 | 621 | 609 | 777 | 426 | 300 | 124 | 393 | 28 | 50 | 63 |
| 13 | 154 | 330 | 550 | 548 | 1100 | 420 | 295 | 115 | 417 | 65 | 42 | 59 |
| 14 | 154 | 314 | 498 | 507 | 1320 | 421 | 288 | 107 | 350 | 126 | 37 | 56 |
| 15 | 153 | 284 | 463 | 485 | 1450 | 397 | 294 | 96 | 286 | 169 | 32 | 52 |
| 16 | 151 | 266 | 433 | 456 | 1590 | 374 | 316 | 98 | 276 | 173 | 28 | 48 |
| 17 | 149 | 248 | 409 | 428 | 1780 | 360 | 331 | 113 | 220 | 130 | 28 | 43 |
| 18 | 153 | 238 | 400 | 423 | 1880 | 351 | 328 | 135 | 179 | 92 | 35 | 40 |
| 19 | 153 | 300 | 395 | 441 | 1560 | 342 | 315 | 130 | 154 | 69 | 300 | 37 |
| 20 | 154 | 443 | 384 | 451 | 938 | 330 | 291 | 117 | 132 | 57 | 775 | 36 |
| 21 | 157 | 559 | 380 | 423 | 698 | 320 | 270 | 107 | 113 | 48 | 1160 | 37 |
| 22 | 158 | 526 | 389 | 474 | 621 | 328 | 262 | 108 | 98 | 40 | 1510 | 36 |
| 23 | 182 | 463 | 395 | 509 | 579 | 412 | 250 | 111 | 87 | 34 | 1830 | 42 |
| 24 | 362 | 393 | 393 | 472 | 554 | 542 | 240 | 150 | 81 | 33 | 1840 | 49 |
| 25 | 523 | 346 | 378 | 422 | 536 | 659 | 222 | 302 | 74 | 32 | 1060 | 50 |
| 26 | 485 | 320 | 356 | 422 | 549 | 704 | 214 | 389 | 67 | 45 | 539 | 52 |
| 27 | 385 | 299 | 340 | 424 | 599 | 667 | 200 | 334 | 65 | 56 | 817 | 282 |
| 28 | 327 | 300 | 333 | 424 | 631 | 585 | 192 | 266 | 65 | 68 | 1080 | 679 |
| 29 | 297 | 591 | 329 | 403 | --- | 497 | 184 | 213 | 57 | 83 | 1240 | 886 |
| 30 | 288 | 859 | 328 | 389 | --- | 470 | 171 | 173 | 53 | 182 | 879 | 550 |
| 31 | 276 | --- | 342 | 383 | --- | 473 | --- | 154 | --- | 167 | 326 | --- |
| TOTAL | 8354 | 10886 | 17970 | 17941 | 31004 | 14403 | 9016 | 5369 | 7405 | 2161 | 14429 | 4589 |
| MEAN | 269 | 363 | 580 | 579 | 1107 | 465 | 301 | 173 | 247 | 69.7 | 465 | 153 |
| MAX | 609 | 859 | 1120 | 1100 | 1980 | 704 | 476 | 389 | 694 | 182 | 1840 | 886 |
| MIN | 149 | 224 | 328 | 360 | 516 | 320 | 171 | 96 | 53 | 28 | 28 | 36 |
| CFSM | .45 | .60 | .97 | .96 | 1.84 | .77 | .50 | .29 | .41 | .12 | .77 | .25 |
| IN. | .52 | .67 | 1.11 | 1.11 | 1.92 | .89 | .56 | .33 | .46 | .13 | .89 | .28 |

CAL YR 1984 TOTAL 349849 MEAN 956 MAX 9810 MIN 85 CFSM 1.59 IN. 21.65
WTR YR 1985 TOTAL 143527 MEAN 393 MAX 1980 MIN 28 CFSM .65 IN. 8.88

## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1969, 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 09:30 | 146 | 49 | 48 | 6.6 | 6.6 | 16.5 | 772 | 2.0 | 7.8 | 79 | -- |
| NOV 14... | 11:15 | 316 | 48 | 48 | 6.5 | 6.5 | 7.5 | 763 | 5.6 | 10.9 | 91 | 92 |
| DEC 12... | 09:00 | 591 | 47 | 45 | 6.6 | 6.5 | 5.0 | 767 | 5.0 | 11.7 | 91 | -- |
| JAN 09... | 09:30 | 1100 | 58 | 44 | 6.3 | 6.4 | 3.0 | 767 | 10 | 12.3 | 91 | 730 |
| FEB 21... | 11:30 | 698 | 46 | 46 | 6.6 | 6.3 | 4.5 | 769 | 3.5 | 12.8 | 98 | 34 |
| MAR 12... | 09:15 | 427 | 50 | 50 | 6.5 | 6.9 | 9.0 | 754 | 3.0 | 10.7 | 94 | -- |
| APR 16... | 13:00 | 320 | 48 | 49 | 6.9 | 6.7 | 15.0 | 751 | 4.0 | 9.6 | 97 | 80 |
| MAY 29... | 14:15 | 209 | 52 | 63 | 6.5 | 6.5 | 20.0 | 754 | 4.1 | 7.5 | 83 | -- |
| JUN 13... | 09:00 | 427 | 52 | 52 | 6.8 | 6.5 | 21.5 | 750 | 5.0 | 7.0 | 81 | 84 |
| JUL 10... | 13:00 | 34 | 56 | 58 | 6.6 | 7.1 | 25.0 | 751 | 2.1 | 6.9 | 85 | -- |
| AUG 21... | 10:00 | 1140 | 45 | 45 | 5.7 | 5.9 | 22.5 | 755 | 3.7 | 6.2 | 72 | 380 |
| SEP 23... | 14:00 | 43 | 58 | 62 | 6.7 | 7.5 | 20.0 | 755 | 3.5 | 8.8 | 98 | -- |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | ALKA-LINITY FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | -- | -- | -- | -- | -- | -- | -- | 9.0 | -- | -- | -- | -- |
| NOV 14... | 110 | 12 | 12 | 2.5 | 1.4 | 3.6 | 1.9 | 10 | 8 | 5.0 | 5.8 | <0.1 |
| DEC 12... | -- | -- | -- | -- | -- | -- | -- | 7.0 | -- | -- | -- | -- |
| JAN 09... | 750 | 11 | 11 | 2.3 | 1.2 | 3.2 | 1.3 | 6.0 | 5 | 7.4 | 4.5 | <0.1 |
| FEB 21... | 24 | 11 | 11 | 2.4 | 1.2 | 3.2 | 1.3 | 6.0 | 7 | 7.5 | 4.8 | <0.1 |
| MAR 12... | -- | -- | -- | -- | -- | -- | -- | 9.0 | -- | -- | -- | -- |
| APR 16... | 38 | 13 | 13 | 2.8 | 1.5 | 3.5 | 1.4 | 12 | 11 | 4.1 | 5.0 | 0.2 |
| MAY 29... | -- | -- | -- | -- | -- | -- | -- | 13 | -- | -- | -- | -- |
| JUN 13... | 210 | 16 | 16 | 3.6 | 1.7 | 3.2 | 1.4 | 11 | 13 | 7.3 | 4.2 | <0.1 |
| JUL 10... | -- | -- | -- | -- | -- | -- | -- | 18 | -- | -- | -- | -- |
| AUG 21... | 840 | 11 | 11 | 2.6 | 1.2 | 2.8 | 1.8 | 4.0 | 4 | 8.3 | 4.0 | <0.1 |
| SEP 23... | -- | -- | -- | -- | -- | -- | -- | 15 | -- | -- | -- | -- |

### 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | ALUM-INUM, DIS-SOLVED (UG/L AS AL) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 17... | 7.5 | -- | -- | <0.01 | <0.10 | 0.22 | 0.5 | 0.04 | <0.01 | 0.01 | -- |
| NOV | | | | | | | | | | | |
| 14... | 9.6 | 46 | 36 | <0.01 | <0.10 | 0.15 | 0.8 | 0.03 | <0.01 | <0.01 | 70 |
| DEC | | | | | | | | | | | |
| 12... | 10 | -- | -- | <0.01 | <0.10 | 0.04 | 0.3 | <0.01 | <0.01 | <0.01 | -- |
| JAN | | | | | | | | | | | |
| 09... | 10 | 44 | 33 | <0.01 | <0.10 | 0.03 | 0.5 | 0.06 | 0.03 | <0.01 | -- |
| FEB | | | | | | | | | | | |
| 21... | 8.6 | 38 | 34 | <0.01 | 0.15 | 0.04 | 1.0 | -- | -- | 0.08 | 50 |
| MAR | | | | | | | | | | | |
| 12... | 6.9 | -- | -- | 0.02 | 0.39 | 0.08 | 0.6 | 0.25 | 0.20 | 0.18 | -- |
| APR | | | | | | | | | | | |
| 16... | 4.1 | 27 | 30 | <0.01 | 0.11 | 0.04 | 2.3 | 0.03 | 0.02 | <0.01 | 30 |
| MAY | | | | | | | | | | | |
| 29... | 8.3 | -- | -- | <0.01 | 0.17 | 0.06 | 0.4 | 0.04 | 0.02 | <0.01 | -- |
| JUN | | | | | | | | | | | |
| 13... | 9.1 | 35 | 38 | <0.01 | 0.21 | 0.06 | 0.7 | 0.07 | 0.02 | 0.03 | -- |
| JUL | | | | | | | | | | | |
| 10... | 1.0 | -- | -- | <0.01 | <0.10 | <0.01 | 0.3 | 0.03 | 0.04 | 0.01 | -- |
| AUG | | | | | | | | | | | |
| 21... | 6.2 | 34 | 31 | <0.01 | <0.10 | 0.03 | 0.7 | 0.07 | 0.04 | 0.02 | 10 |
| SEP | | | | | | | | | | | |
| 23... | 9.9 | -- | -- | <0.01 | 0.26 | 0.03 | 0.3 | 0.07 | 0.07 | 0.04 | -- |

| DATE | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | BERYL-LIUM, DIS-SOLVED (UG/L AS BE) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) | LITHIUM DIS-SOLVED (UG/L AS LI) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 14... | <1 | 23 | <0.5 | 2 | <1 | 4 | <1 | 1100 | 1 | <4 | 35 |
| DEC | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 21... | <1 | 26 | <0.5 | <1 | <1 | <3 | 1 | 290 | <1 | 8 | 37 |
| MAR | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | | |
| 16... | 1 | 23 | <0.5 | <1 | <1 | <3 | 1 | 590 | 3 | <4 | 51 |
| MAY | | | | | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 21... | 1 | 47 | <0.5 | 1 | <1 | <3 | 2 | 730 | <1 | <4 | 330 |
| SEP | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRON-TIUM, DIS-SOLVED (UG/L AS SR) | VANA-DIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | -- | -- | -- | -- | -- | -- | -- | -- | 4.6 | 4 | 91 |
| NOV 14... | <0.1 | <10 | 3 | <1 | <1 | 19 | <6 | 5 | 6.2 | 4 | 69 |
| DEC 12... | -- | -- | -- | -- | -- | -- | -- | -- | 7.7 | 10 | 68 |
| JAN 09... | -- | -- | -- | -- | -- | -- | -- | -- | 5.6 | 18 | 72 |
| FEB 21... | <0.1 | <10 | <1 | <1 | <1 | 18 | <6 | 17 | 4.5 | 7 | 82 |
| MAR 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 8 | 76 |
| APR 16... | <0.1 | <10 | 1 | <1 | <1 | 22 | <6 | 3 | -- | 6 | 94 |
| MAY 29... | -- | -- | -- | -- | -- | -- | -- | -- | 6.7 | 4 | 72 |
| JUN 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10 | 88 |
| JUL 10... | -- | -- | -- | -- | -- | -- | -- | -- | 9.2 | 2 | 100 |
| AUG 21... | 0.2 | <10 | <1 | <1 | <1 | 21 | <6 | 64 | 17 | 25 | 82 |
| SEP 23... | -- | -- | -- | -- | -- | -- | -- | -- | 10 | 5 | 75 |

## 01677000 WARE CREEK NEAR TOANO, VA

LOCATION.--Lat 37°26'17", long 76°47'12", New Kent County, Hydrologic Unit 02080107, on left bank at upstream side of bridge on State Highway 600, 0.8 mi upstream from France Swamp, and 4.9 mi north of Toano.

DRAINAGE AREA.--6.29 $mi^2$.

PERIOD OF RECORD.--October 1979 to October 1981, March 1982 to current year.

REVISED RECORDS.--WDR VA-83-1: 1981.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 11 to Jan. 4, Jan. 7-30, Feb. 5-10, 15-23, Apr. 7, May 16, 17, May 29 to June 4, June 7, 9-11, 14-25, and Aug. 24 to Sept. 30. Records poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--5 years, 6.39 $ft^3/s$, 13.80 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260 $ft^3/s$, Sept. 27, 1985, gage height, 2.60 ft, from floodmark, from rating curve extended above 120 $ft^3/s$; no flow at times September 1980 and July to September 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 260 $ft^3/s$, Sept. 27, gage height, 2.60 ft, from floodmark, from rating curve extended above 120 $ft^3/s$; minimum, 0.45 $ft^3/s$, Aug. 16, gage height, 0.62 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.2 | 3.3 | 5.8 | 7.6 | 26 | 3.8 | 4.4 | 3.0 | 1.2 | 3.1 | 5.1 | 2.7 |
| 2 | 7.6 | 3.3 | 4.4 | 14 | 22 | 4.3 | 3.6 | 3.0 | 1.1 | 2.6 | 4.1 | 2.5 |
| 3 | 5.6 | 3.0 | 12 | 30 | 14 | 4.0 | 3.3 | 6.8 | 1.0 | 2.4 | 2.2 | 2.2 |
| 4 | 4.6 | 3.1 | 11 | 27 | 11 | 3.7 | 3.5 | 6.4 | 15 | 2.1 | 2.0 | 1.8 |
| 5 | 4.0 | 5.0 | 6.7 | 16 | 6.1 | 3.8 | 3.5 | 4.3 | 32 | 2.0 | 3.0 | 1.5 |
| 6 | 4.1 | 5.4 | 13 | 12 | 6.6 | 3.5 | 3.2 | 3.5 | 46 | 2.0 | 4.2 | 1.3 |
| 7 | 4.0 | 4.1 | 9.9 | 8.0 | 6.1 | 3.3 | 1.1 | 3.1 | 18 | 2.2 | 4.9 | 1.2 |
| 8 | 3.9 | 3.4 | 6.1 | 5.8 | 5.2 | 3.6 | 1.7 | 2.6 | 7.8 | 2.0 | 2.5 | 1.1 |
| 9 | 3.9 | 3.3 | 5.1 | 3.9 | 4.5 | 4.5 | 3.1 | 2.5 | 4.0 | 1.8 | 2.0 | 1.0 |
| 10 | 3.9 | 3.3 | 4.8 | 3.6 | 4.4 | 3.7 | 3.5 | 2.5 | 3.0 | 5.2 | 2.0 | .99 |
| 11 | 3.9 | 4.0 | 4.3 | 3.9 | 8.5 | 3.8 | 3.9 | 2.8 | 4.5 | 3.7 | 1.6 | .98 |
| 12 | 3.9 | 5.1 | 4.2 | 3.6 | 22 | 4.6 | 4.2 | 2.8 | 11 | 2.5 | 1.4 | .97 |
| 13 | 3.9 | 4.2 | 4.1 | 3.5 | 16 | 3.7 | 4.1 | 2.6 | 19 | 2.1 | 1.2 | .95 |
| 14 | 3.9 | 3.7 | 4.0 | 3.4 | 11 | 3.6 | 4.0 | 2.6 | 8.0 | 1.6 | 1.0 | .94 |
| 15 | 3.9 | 3.6 | 4.0 | 3.9 | 7.3 | 3.7 | 5.2 | 2.4 | 3.0 | 1.5 | .75 | .93 |
| 16 | 3.9 | 4.0 | 3.9 | 3.7 | 6.0 | 3.3 | 4.8 | 2.3 | 3.2 | 1.4 | .60 | .92 |
| 17 | 3.9 | 4.0 | 3.8 | 4.1 | 5.0 | 3.6 | 4.2 | 3.6 | 3.0 | 1.3 | .87 | .90 |
| 18 | 4.0 | 3.9 | 3.7 | 5.6 | 4.4 | 3.6 | 3.7 | 3.9 | 2.7 | 1.3 | 4.4 | .89 |
| 19 | 4.3 | 13 | 3.6 | 7.9 | 4.3 | 3.2 | 3.2 | 3.0 | 5.7 | 1.3 | 95 | .88 |
| 20 | 4.7 | 12 | 3.5 | 7.5 | 4.4 | 3.1 | 2.9 | 4.0 | 5.4 | 1.3 | 16 | .85 |
| 21 | 4.9 | 6.0 | 3.4 | 7.2 | 5.1 | 3.3 | 2.9 | 8.4 | 3.5 | 1.2 | 11 | .82 |
| 22 | 4.7 | 4.5 | 3.9 | 2.8 | 5.1 | 4.7 | 3.2 | 20 | 2.5 | 1.7 | 7.2 | 5.0 |
| 23 | 5.0 | 4.2 | 3.6 | 2.9 | 5.0 | 9.5 | 3.1 | 9.1 | 2.2 | 7.3 | 4.3 | 5.8 |
| 24 | 10 | 4.3 | 3.3 | 3.1 | 4.0 | 8.6 | 3.2 | 9.3 | 2.8 | 5.3 | 5.0 | 4.2 |
| 25 | 6.5 | 4.5 | 3.5 | 4.0 | 4.0 | 7.7 | 3.4 | 14 | 2.3 | 3.5 | 9.8 | 10 |
| 26 | 4.4 | 4.2 | 3.4 | 4.1 | 8.4 | 5.5 | 3.5 | 7.1 | 2.0 | 6.6 | 7.5 | 35 |
| 27 | 3.7 | 4.4 | 3.3 | 3.6 | 7.4 | 4.2 | 3.2 | 4.2 | 1.3 | 5.3 | 6.0 | 150 |
| 28 | 3.6 | 6.4 | 3.3 | 3.8 | 4.5 | 3.9 | 3.2 | 3.9 | 1.1 | 4.8 | 4.9 | 40 |
| 29 | 3.6 | 19 | 3.2 | 4.0 | --- | 4.5 | 3.0 | 4.4 | 1.4 | 3.7 | 4.1 | 24 |
| 30 | 3.5 | 9.7 | 3.2 | 3.8 | --- | 8.6 | 2.9 | 2.5 | 3.6 | 2.7 | 3.5 | 15 |
| 31 | 3.3 | --- | 4.5 | 14 | --- | 7.9 | --- | 1.3 | --- | 2.5 | 3.0 | --- |
| TOTAL | 142.3 | 161.9 | 156.5 | 228.3 | 238.3 | 142.8 | 102.7 | 151.9 | 217.3 | 88.0 | 221.12 | 315.32 |
| MEAN | 4.59 | 5.40 | 5.05 | 7.36 | 8.51 | 4.61 | 3.42 | 4.90 | 7.24 | 2.84 | 7.13 | 10.5 |
| MAX | 10 | 19 | 13 | 30 | 26 | 9.5 | 5.2 | 20 | 46 | 7.3 | 95 | 150 |
| MIN | 3.3 | 3.0 | 3.2 | 2.8 | 4.0 | 3.1 | 1.1 | 1.3 | 1.0 | 1.2 | .60 | .82 |
| CFSM | .73 | .86 | .80 | 1.17 | 1.35 | .73 | .54 | .78 | 1.15 | .45 | 1.13 | 1.67 |
| IN. | .84 | .96 | .93 | 1.35 | 1.41 | .84 | .61 | .90 | 1.29 | .52 | 1.31 | 1.86 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 3164.8 | MEAN | 8.65 | MAX | 71 | MIN | 3.0 | CFSM 1.38 | IN. | 18.72 |
| WTR YR 1985 | TOTAL | 2166.44 | MEAN | 5.94 | MAX | 150 | MIN | .60 | CFSM .94 | IN. | 12.81 |

## JAMES RIVER BASIN

## 02011400 JACKSON RIVER NEAR BACOVA, VA

LOCATION.--Lat 38°02'32", long 79°52'54", Bath County, Hydrologic Unit 02080201, on left bank 0.1 mi downstream from ford, 1.8 mi upstream from Back Creek, and 2.2 mi southwest of Bacova.

DRAINAGE AREA.--158 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,639.20 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 17, 22-31. Records good except those for periods with ice effect, Jan. 17, 22-31, which are fair. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--11 years, 172 $ft^3/s$, 14.78 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,970 $ft^3/s$, Apr. 5, 1977, gage height, 13.39 ft, from rating curve extended above 1,300 $ft^3/s$ on basis of slope-area measurements at gage heights 8.88 ft, 11.40 ft, and 13.88 ft; minimum, 17 $ft^3/s$, Sept. 29, 30, Oct. 1, 14, 15, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 11.40 ft, discharge, 4,800 $ft^3/s$, and flood of Dec. 26, 1973, reached a stage of 13.88 ft, discharge, 7,560 $ft^3/s$, from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 1745 | *1,500 | *7.33 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 25 $ft^3/s$, part or all of each day Sept. 25-30; minimum gage height, 3.06 ft, Sept. 29, 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 106 | 63 | 352 | 229 | 243 | 427 | 205 | 75 | 118 | 47 | 70 | 45 |
| 2 | 87 | 59 | 263 | 393 | 513 | 353 | 188 | 78 | 105 | 50 | 104 | 43 |
| 3 | 61 | 55 | 222 | 452 | 322 | 290 | 182 | 835 | 98 | 46 | 76 | 41 |
| 4 | 52 | 58 | 187 | 676 | 237 | 250 | 171 | 626 | 91 | 44 | 59 | 39 |
| 5 | 47 | 144 | 164 | 584 | 199 | 228 | 157 | 403 | 89 | 42 | 50 | 37 |
| 6 | 45 | 126 | 171 | 438 | 186 | 193 | 195 | 308 | 85 | 41 | 45 | 36 |
| 7 | 43 | 101 | 147 | 374 | 165 | 170 | 175 | 251 | 102 | 43 | 44 | 35 |
| 8 | 42 | 87 | 132 | 319 | 135 | 163 | 165 | 207 | 128 | 39 | 53 | 34 |
| 9 | 43 | 79 | 126 | 260 | 120 | 167 | 160 | 175 | 112 | 38 | 64 | 42 |
| 10 | 42 | 73 | 126 | 222 | 113 | 147 | 150 | 152 | 95 | 41 | 49 | 37 |
| 11 | 40 | 92 | 134 | 202 | 114 | 161 | 143 | 144 | 86 | 48 | 42 | 35 |
| 12 | 39 | 95 | 139 | 179 | 325 | 346 | 136 | 133 | 86 | 47 | 39 | 33 |
| 13 | 39 | 83 | 136 | 160 | 222 | 325 | 127 | 220 | 82 | 56 | 40 | 32 |
| 14 | 38 | 76 | 126 | 151 | 154 | 283 | 122 | 167 | 76 | 54 | 36 | 30 |
| 15 | 38 | 72 | 118 | 142 | 132 | 244 | 121 | 141 | 71 | 45 | 34 | 29 |
| 16 | 44 | 69 | 113 | 121 | 115 | 209 | 140 | 128 | 70 | 40 | 33 | 29 |
| 17 | 46 | 65 | 108 | 110 | 109 | 194 | 131 | 124 | 69 | 37 | 33 | 29 |
| 18 | 44 | 65 | 105 | 118 | 102 | 178 | 116 | 116 | 70 | 35 | 172 | 28 |
| 19 | 41 | 195 | 116 | 116 | 103 | 158 | 110 | 110 | 63 | 33 | 144 | 28 |
| 20 | 40 | 221 | 149 | 95 | 122 | 147 | 107 | 96 | 59 | 32 | 84 | 27 |
| 21 | 39 | 165 | 235 | 82 | 133 | 136 | 104 | 88 | 56 | 32 | 71 | 27 |
| 22 | 39 | 137 | 397 | 120 | 168 | 134 | 101 | 92 | 53 | 31 | 64 | 27 |
| 23 | 48 | 120 | 349 | 110 | 275 | 184 | 99 | 124 | 51 | 31 | 54 | 27 |
| 24 | 67 | 110 | 300 | 100 | 678 | 221 | 98 | 459 | 49 | 29 | 52 | 27 |
| 25 | 59 | 99 | 507 | 90 | 969 | 209 | 102 | 469 | 47 | 35 | 71 | 26 |
| 26 | 53 | 91 | 408 | 80 | 1070 | 186 | 93 | 323 | 45 | 82 | 85 | 26 |
| 27 | 49 | 83 | 339 | 70 | 786 | 177 | 88 | 246 | 44 | 72 | 77 | 26 |
| 28 | 49 | 657 | 288 | 75 | 555 | 171 | 88 | 198 | 44 | 48 | 67 | 26 |
| 29 | 95 | 852 | 246 | 68 | --- | 175 | 85 | 168 | 43 | 40 | 58 | 25 |
| 30 | 89 | 476 | 214 | 65 | --- | 204 | 79 | 144 | 42 | 38 | 52 | 25 |
| 31 | 72 | --- | 236 | 75 | --- | 186 | --- | 131 | --- | 85 | 49 | --- |
| TOTAL | 1636 | 4668 | 6653 | 6276 | 8365 | 6618 | 3938 | 6931 | 2229 | 1301 | 1971 | 951 |
| MEAN | 52.8 | 156 | 215 | 202 | 299 | 213 | 131 | 224 | 74.3 | 44.5 | 63.6 | 31.7 |
| MAX | 106 | 852 | 507 | 676 | 1070 | 427 | 205 | 835 | 128 | 85 | 172 | 45 |
| MIN | 38 | 55 | 105 | 65 | 102 | 134 | 79 | 75 | 42 | 29 | 33 | 25 |
| CFSM | .33 | .99 | 1.36 | 1.28 | 1.89 | 1.35 | .83 | 1.42 | .47 | .28 | .40 | .20 |
| IN. | .39 | 1.10 | 1.57 | 1.48 | 1.97 | 1.56 | .93 | 1.63 | .52 | .33 | .46 | .22 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 80958 | MEAN | 221 | MAX | 3690 | MIN | 37 | CFSM | 1.40 | IN. 19.06 |
| WTR YR 1985 | TOTAL | 51617 | MEAN | 141 | MAX | 1070 | MIN | 25 | CFSM | .89 | IN. 12.15 |

## 02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: March 1978 to September 1981, October 1982 to current year.

INSTRUMENTATION.--Water-temperature recorder March 1978 to September 1981, and since October 1982.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum recorded (water years 1978-81, 1983-85), 29.5°C, July 21, 1980; minimum recorded (water years 1978-81, 1984-85), 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 27.5°C, July 30, Aug. 13-15; minimum, 0.0°C on several days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 13.0 | 12.0 | 12.5 | 15.0 | 14.5 | 14.5 | 8.0 | 5.0 | 6.5 | 10.5 | 8.0 | 9.0 |
| 2 | 13.0 | 12.0 | 12.5 | 14.5 | 14.0 | 14.0 | 7.0 | 5.0 | 5.5 | 10.5 | 9.0 | 10.0 |
| 3 | 13.0 | 12.5 | 13.0 | 13.5 | 12.5 | 12.5 | 7.5 | 6.0 | 6.5 | 9.0 | 6.0 | 7.5 |
| 4 | 14.5 | 11.0 | 13.0 | 12.5 | 11.5 | 12.0 | 5.5 | 4.0 | 4.5 | 7.0 | 6.0 | 6.5 |
| 5 | 15.5 | 13.5 | 14.0 | 11.5 | 11.5 | 11.5 | 4.0 | 3.0 | 3.5 | 6.0 | 5.0 | 5.5 |
| 6 | 15.5 | 14.0 | 14.5 | 11.5 | 10.5 | 11.0 | 4.0 | 2.0 | 3.0 | 5.5 | 4.0 | 4.5 |
| 7 | 15.5 | 14.5 | 15.0 | 10.5 | 9.5 | 10.0 | 2.0 | .0 | 1.0 | 5.5 | 4.5 | 5.0 |
| 8 | 15.5 | 14.5 | 14.5 | 10.0 | 9.0 | 9.5 | 2.0 | .0 | 1.0 | 4.5 | 3.5 | 4.0 |
| 9 | 16.0 | 14.5 | 15.0 | 10.0 | 9.0 | 9.5 | 3.5 | .5 | 2.0 | 3.5 | 2.0 | 3.0 |
| 10 | 17.0 | 15.0 | 16.0 | 10.5 | 9.5 | 9.5 | 4.5 | 2.5 | 3.0 | 3.5 | 2.5 | 3.0 |
| 11 | 16.5 | 15.0 | 15.5 | 10.5 | 10.0 | 10.0 | 7.0 | 4.0 | 5.5 | 3.0 | 2.0 | 2.5 |
| 12 | 15.5 | 15.0 | 15.5 | 10.0 | 9.0 | 9.5 | 6.0 | 4.0 | 5.0 | 2.0 | .0 | 1.5 |
| 13 | 15.5 | 15.0 | 15.0 | 9.0 | 8.0 | 8.5 | 8.0 | 5.0 | 6.5 | 2.5 | .0 | 1.0 |
| 14 | 15.0 | 14.5 | 15.0 | 8.0 | 4.5 | 6.5 | 8.5 | 5.0 | 7.5 | 3.0 | .5 | 1.5 |
| 15 | 15.0 | 14.5 | 14.5 | 7.0 | 3.5 | 5.0 | 10.5 | 7.5 | 9.0 | 1.5 | .0 | 1.0 |
| 16 | 15.0 | 14.5 | 14.5 | 9.5 | 5.5 | 7.5 | 10.5 | 8.0 | 9.0 | 1.0 | .0 | .5 |
| 17 | 15.5 | 15.0 | 15.0 | 8.0 | 4.5 | 6.5 | 10.5 | 8.5 | 9.5 | 1.0 | .0 | .5 |
| 18 | 16.0 | 15.5 | 15.5 | 7.5 | 4.0 | 5.5 | 10.0 | 8.5 | 9.5 | 1.5 | 1.0 | 1.5 |
| 19 | 16.0 | 16.0 | 16.0 | 7.0 | 5.0 | 6.0 | 10.5 | 9.5 | 10.0 | 2.5 | 1.5 | 2.0 |
| 20 | 16.0 | 16.0 | 16.0 | 7.0 | 5.0 | 6.0 | 10.0 | 8.5 | 9.0 | 2.0 | .0 | 1.0 |
| 21 | 16.5 | 16.0 | 16.0 | 6.5 | 6.0 | 6.0 | 8.0 | 7.5 | 8.0 | .5 | .0 | .0 |
| 22 | 16.5 | 16.5 | 16.5 | 6.0 | 5.5 | 5.5 | 9.5 | 7.5 | 8.5 | .0 | .0 | .0 |
| 23 | 16.5 | 16.5 | 16.5 | 5.5 | 5.0 | 5.5 | 7.0 | 5.0 | 6.0 | 1.0 | .0 | .0 |
| 24 | 16.5 | 16.0 | 16.5 | 6.0 | 5.0 | 5.5 | 5.0 | 3.5 | 4.5 | .5 | .0 | .0 |
| 25 | 16.5 | 16.0 | 16.0 | 6.0 | 5.5 | 5.5 | 6.5 | 4.5 | 5.5 | .0 | .0 | .0 |
| 26 | 16.5 | 16.0 | 16.5 | 6.0 | 5.5 | 6.0 | 4.5 | 3.0 | 4.0 | .5 | .0 | .0 |
| 27 | 17.0 | 16.0 | 16.5 | 7.0 | 6.0 | 6.5 | 5.5 | 4.5 | 5.0 | 2.0 | .0 | .5 |
| 28 | 16.5 | 16.0 | 16.0 | 9.0 | 5.0 | 7.5 | 8.0 | 5.0 | 6.5 | 4.0 | 1.0 | 2.0 |
| 29 | 16.5 | 16.5 | 16.5 | 7.5 | 5.0 | 6.5 | 10.0 | 7.0 | 8.5 | 3.5 | 2.5 | 3.0 |
| 30 | 16.5 | 15.0 | 15.5 | 6.5 | 4.5 | 5.5 | 10.0 | 8.5 | 9.5 | 3.5 | 2.0 | 2.5 |
| 31 | 15.5 | 14.5 | 15.0 | --- | --- | --- | 9.5 | 8.5 | 9.0 | 3.0 | 2.5 | 2.5 |
| MONTH | 17.0 | 11.0 | 15.0 | 15.0 | 3.5 | 8.0 | 10.5 | .0 | 6.0 | 10.5 | .0 | 2.5 |

## 02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 3.0 | .5 | 1.5 | 6.0 | 4.0 | 5.5 | 13.0 | 9.0 | 10.5 | 19.5 | 14.0 | 17.0 |
| 2 | 3.5 | .5 | 2.0 | 8.0 | 5.5 | 6.5 | 10.5 | 7.5 | 9.0 | 18.0 | 15.5 | 16.5 |
| 3 | 3.5 | 3.0 | 3.5 | 8.5 | 5.5 | 7.0 | 9.0 | 6.0 | 7.5 | 15.5 | 11.5 | 13.0 |
| 4 | 3.5 | 3.5 | 3.5 | 7.5 | 7.0 | 7.0 | 12.5 | 6.5 | 9.5 | 13.0 | 10.0 | 12.0 |
| 5 | 4.0 | 3.0 | 3.5 | 10.5 | 7.0 | 8.5 | 15.5 | 10.0 | 12.5 | 14.0 | 11.0 | 12.5 |
| 6 | 4.0 | 3.5 | 4.0 | 8.5 | 5.5 | 6.5 | 13.5 | 10.0 | 12.0 | 15.0 | 12.5 | 14.0 |
| 7 | 4.0 | 3.0 | 3.5 | 8.0 | 4.0 | 6.0 | 10.0 | 7.0 | 8.5 | 17.5 | 14.0 | 15.5 |
| 8 | 4.0 | 2.5 | 3.5 | 7.5 | 6.0 | 6.5 | 9.5 | 6.0 | 7.5 | 17.0 | 13.5 | 15.0 |
| 9 | 3.5 | 1.5 | 3.0 | 10.5 | 6.5 | 8.0 | 7.5 | 5.0 | 6.5 | 18.5 | 12.5 | 15.0 |
| 10 | 3.5 | 1.5 | 2.5 | 10.5 | 5.5 | 8.0 | 9.5 | 3.0 | 6.5 | 19.5 | 14.5 | 16.5 |
| 11 | 3.5 | 2.0 | 3.0 | 7.5 | 6.0 | 6.5 | 9.0 | 6.5 | 7.5 | 19.0 | 15.0 | 17.0 |
| 12 | 3.5 | 1.5 | 2.5 | 9.0 | 6.5 | 7.0 | 14.0 | 7.0 | 10.5 | 21.0 | 16.0 | 18.5 |
| 13 | 3.5 | 3.0 | 3.0 | 8.5 | 5.5 | 7.0 | 13.5 | 10.0 | 12.0 | 20.0 | 17.0 | 18.5 |
| 14 | 3.5 | 1.0 | 3.0 | 8.5 | 7.0 | 8.0 | 13.0 | 11.5 | 12.5 | 21.0 | 17.0 | 19.0 |
| 15 | 3.5 | 2.0 | 3.0 | 9.5 | 6.0 | 7.5 | 14.5 | 12.0 | 13.0 | 20.0 | 17.5 | 19.0 |
| 16 | 3.5 | 1.0 | 3.0 | 9.0 | 4.5 | 6.5 | 16.5 | 12.5 | 14.5 | 21.0 | 17.5 | 19.0 |
| 17 | 4.0 | 3.0 | 3.5 | 9.5 | 6.0 | 7.0 | 17.0 | 11.5 | 14.5 | 18.5 | 16.0 | 17.0 |
| 18 | 4.0 | 3.0 | 3.5 | 8.0 | 4.5 | 6.0 | 18.5 | 11.0 | 14.5 | 18.0 | 13.5 | 15.5 |
| 19 | 4.5 | 4.0 | 4.0 | 8.5 | 3.0 | 5.5 | 19.0 | 13.0 | 16.5 | 19.0 | 13.0 | 15.5 |
| 20 | 5.0 | 4.0 | 4.5 | 9.5 | 4.5 | 7.0 | 19.5 | 14.0 | 17.0 | 20.0 | 13.5 | 17.0 |
| 21 | 5.0 | 4.0 | 4.5 | 8.0 | 6.5 | 7.0 | 20.0 | 14.0 | 17.5 | 19.5 | 16.5 | 18.0 |
| 22 | 5.5 | 4.5 | 5.0 | 6.5 | 5.0 | 5.5 | 18.5 | 13.5 | 16.5 | 18.5 | 16.5 | 17.5 |
| 23 | 6.0 | 5.0 | 5.5 | 8.0 | 5.0 | 6.5 | 21.0 | 14.5 | 17.5 | 18.0 | 16.0 | 17.0 |
| 24 | 8.5 | 4.5 | 6.5 | 11.0 | 7.5 | 9.0 | 19.0 | 15.5 | 17.5 | 15.5 | 13.0 | 14.0 |
| 25 | 8.0 | 6.5 | 7.5 | 8.5 | 7.0 | 7.5 | 19.5 | 15.5 | 17.5 | 16.0 | 12.5 | 14.0 |
| 26 | 8.0 | 6.5 | 7.0 | 10.5 | 5.0 | 7.5 | 20.0 | 13.5 | 16.5 | 17.5 | 13.5 | 15.5 |
| 27 | 8.0 | 6.5 | 7.0 | 12.0 | 6.0 | 9.0 | 17.5 | 14.0 | 16.0 | 18.0 | 14.5 | 16.0 |
| 28 | 6.5 | 4.5 | 5.5 | 14.0 | 9.5 | 11.5 | 19.0 | 15.5 | 17.0 | 17.5 | 16.0 | 16.5 |
| 29 | --- | --- | --- | 15.5 | 12.0 | 14.0 | 20.5 | 14.0 | 17.0 | 19.5 | 15.5 | 17.0 |
| 30 | --- | --- | --- | 15.5 | 13.0 | 14.0 | 20.5 | 13.5 | 17.0 | 17.5 | 16.0 | 16.5 |
| 31 | --- | --- | --- | 13.5 | 10.5 | 12.0 | --- | --- | --- | 19.5 | 15.0 | 17.0 |
| MONTH | 8.5 | .5 | 4.0 | 15.5 | 3.0 | 8.0 | 21.0 | 3.0 | 13.0 | 21.0 | 10.0 | 16.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 23.0 | 17.0 | 20.0 | 20.5 | 18.0 | 19.0 | 23.5 | 20.5 | 22.0 | 21.0 | 18.0 | 19.5 |
| 2 | 20.0 | 17.5 | 19.0 | 20.5 | 17.5 | 19.0 | 22.5 | 19.0 | 20.5 | 23.0 | 18.5 | 20.5 |
| 3 | 21.0 | 16.5 | 19.0 | 21.5 | 18.0 | 19.5 | 22.5 | 17.5 | 20.0 | 23.5 | 19.5 | 21.5 |
| 4 | 21.0 | 17.5 | 19.5 | 22.5 | 19.0 | 20.5 | 21.5 | 18.0 | 20.0 | 24.5 | 20.0 | 22.0 |
| 5 | 21.5 | 18.5 | 20.0 | 23.5 | 19.5 | 21.0 | 21.0 | 18.5 | 19.5 | 25.0 | 20.5 | 22.5 |
| 6 | 22.5 | 19.5 | 21.0 | 22.0 | 20.0 | 21.0 | 20.5 | 18.5 | 19.5 | 24.0 | 21.5 | 22.5 |
| 7 | 21.0 | 17.0 | 18.5 | 24.0 | 19.5 | 21.5 | 20.5 | 18.5 | 20.0 | 25.0 | 21.0 | 22.5 |
| 8 | 21.5 | 16.0 | 18.5 | 25.0 | 20.0 | 22.5 | 25.0 | 19.5 | 22.0 | 25.5 | 21.5 | 23.5 |
| 9 | 22.5 | 17.5 | 20.0 | 26.0 | 21.0 | 23.5 | 25.5 | 21.5 | 23.0 | 25.0 | 22.0 | 23.5 |
| 10 | 23.5 | 18.5 | 21.0 | 23.5 | 20.0 | 21.5 | 25.5 | 21.5 | 23.5 | 25.0 | 21.0 | 23.0 |
| 11 | 23.5 | 19.0 | 21.5 | 24.5 | 19.0 | 21.5 | 25.5 | 21.5 | 23.5 | 22.5 | 20.5 | 21.5 |
| 12 | 22.0 | 19.5 | 21.0 | 24.0 | 21.0 | 22.5 | 26.5 | 22.0 | 24.0 | 20.0 | 17.5 | 19.0 |
| 13 | 19.0 | 15.0 | 16.5 | 25.0 | 21.0 | 22.5 | 27.5 | 23.0 | 24.5 | 18.0 | 15.0 | 16.5 |
| 14 | 17.0 | 13.0 | 15.0 | 25.0 | 20.5 | 22.5 | 27.5 | 23.0 | 25.0 | 17.0 | 14.0 | 15.5 |
| 15 | 18.0 | 14.5 | 16.5 | 26.0 | 22.5 | 24.0 | 27.5 | 23.0 | 25.0 | 17.0 | 13.0 | 15.0 |
| 16 | 19.0 | 16.5 | 18.0 | 26.5 | 22.0 | 24.0 | 25.0 | 23.0 | 24.0 | 17.5 | 13.0 | 15.0 |
| 17 | 22.5 | 16.5 | 19.5 | 26.0 | 21.0 | 23.5 | 23.0 | 21.5 | 22.0 | 17.5 | 13.5 | 15.5 |
| 18 | 22.5 | 19.5 | 20.5 | 26.5 | 21.0 | 23.5 | 21.5 | 18.5 | 20.0 | 18.0 | 14.0 | 16.0 |
| 19 | 21.0 | 17.5 | 19.5 | 27.0 | 21.5 | 24.0 | 21.0 | 17.5 | 19.0 | 18.5 | 15.0 | 16.5 |
| 20 | 20.0 | 16.5 | 18.0 | 26.5 | 21.5 | 24.0 | 21.5 | 18.5 | 20.0 | 19.5 | 15.5 | 17.0 |
| 21 | 20.0 | 15.5 | 18.0 | 26.5 | 22.5 | 24.5 | 23.0 | 20.0 | 21.5 | 18.5 | 16.0 | 17.0 |
| 22 | 22.0 | 17.0 | 19.5 | 25.0 | 22.5 | 23.5 | 21.5 | 18.5 | 20.0 | 18.0 | 16.5 | 17.0 |
| 23 | 24.5 | 19.0 | 21.5 | 25.5 | 21.0 | 23.0 | 21.5 | 17.5 | 19.5 | 18.5 | 16.0 | 17.0 |
| 24 | 25.0 | 19.5 | 22.0 | 25.0 | 20.0 | 22.5 | 19.5 | 18.5 | 18.5 | 18.0 | 16.5 | 17.0 |
| 25 | 25.5 | 21.0 | 23.0 | 23.0 | 21.0 | 22.0 | 20.0 | 18.0 | 19.0 | 17.0 | 15.0 | 16.0 |
| 26 | 23.5 | 19.0 | 21.5 | 22.5 | 20.0 | 21.0 | 21.5 | 18.5 | 20.0 | 17.0 | 16.0 | 16.5 |
| 27 | 23.0 | 17.5 | 20.0 | 24.5 | 20.5 | 22.0 | 22.5 | 19.5 | 21.0 | 17.0 | 15.5 | 16.0 |
| 28 | 22.0 | 18.0 | 20.0 | 24.5 | 20.0 | 22.0 | 22.5 | 18.5 | 20.5 | 16.0 | 13.5 | 15.0 |
| 29 | 23.5 | 18.5 | 21.0 | 25.0 | 21.0 | 23.0 | 22.5 | 18.5 | 20.5 | 16.0 | 13.5 | 14.5 |
| 30 | 22.0 | 19.0 | 20.5 | 27.5 | 22.0 | 24.5 | 21.0 | 18.5 | 20.0 | 16.0 | 13.5 | 15.0 |
| 31 | --- | --- | --- | 25.0 | 22.0 | 23.5 | 22.0 | 18.0 | 20.0 | --- | --- | --- |
| MONTH | 25.5 | 13.0 | 19.5 | 27.5 | 17.5 | 22.5 | 27.5 | 17.5 | 21.0 | 25.5 | 13.0 | 18.5 |
| YEAR | 27.5 | .0 | 13.0 | | | | | | | | | |

## 02011460 BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°14'43", long 79°46'08", Bath County, Hydrologic Unit 02080201, on right bank 900 ft upstream from bridge on State Highway 600, 0.8 mi upstream from Gap Run, and 4.8 mi northeast of Sunrise.

DRAINAGE AREA.--60.1 mi$^2$, revised.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,200.02 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Estimated daily discharges: Jan. 16, 21-30, Feb. 9, 10, and Apr. 21-26. Records fair except those for period of no gage-height record, Apr. 21-26, and periods with ice effect, Jan. 16, 21-30 and Feb. 9, 10, which are poor.

AVERAGE DISCHARGE.--11 years, 93.9 ft$^3$/s, 21.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,400 ft$^3$/s, Jan. 26, 1978, gage height, 6.80 ft; minimum, 1.5 ft$^3$/s, Sept. 13, 14, 1980; minimum gage height, 0.07 ft, July 21, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 2200 | 902 | 3.64 | May 3 | 0645 | *2,130 | *5.05 |
| Feb. 24 | 2215 | 1,060 | 3.90 | May 24 | 0815 | 874 | 3.59 |

Minimum discharge, 3.5 ft$^3$/s, Sept. 25-30, gage height, 0.27 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 47 | 26 | 157 | 92 | 98 | 205 | 131 | 32 | 55 | 12 | 32 | 14 |
| 2 | 36 | 23 | 109 | 152 | 234 | 167 | 120 | 39 | 45 | 14 | 64 | 13 |
| 3 | 22 | 20 | 94 | 214 | 171 | 134 | 112 | 1060 | 41 | 14 | 36 | 11 |
| 4 | 17 | 20 | 77 | 303 | 123 | 114 | 99 | 379 | 36 | 13 | 25 | 9.6 |
| 5 | 14 | 53 | 65 | 305 | 112 | 103 | 86 | 222 | 35 | 12 | 19 | 8.8 |
| 6 | 12 | 60 | 63 | 232 | 97 | 88 | 89 | 162 | 33 | 12 | 16 | 8.3 |
| 7 | 11 | 49 | 58 | 175 | 72 | 76 | 76 | 127 | 51 | 12 | 14 | 8.0 |
| 8 | 9.9 | 39 | 53 | 134 | 56 | 75 | 74 | 99 | 94 | 10 | 19 | 7.8 |
| 9 | 9.9 | 33 | 50 | 96 | 52 | 82 | 73 | 78 | 93 | 9.9 | 21 | 10 |
| 10 | 9.3 | 30 | 52 | 89 | 49 | 72 | 71 | 69 | 66 | 13 | 16 | 7.5 |
| 11 | 8.7 | 42 | 55 | 80 | 51 | 81 | 74 | 62 | 51 | 21 | 13 | 6.9 |
| 12 | 8.0 | 57 | 60 | 63 | 57 | 298 | 74 | 72 | 56 | 15 | 12 | 6.3 |
| 13 | 7.6 | 55 | 63 | 57 | 54 | 291 | 74 | 142 | 51 | 13 | 10 | 5.9 |
| 14 | 7.6 | 45 | 62 | 57 | 48 | 211 | 73 | 91 | 44 | 22 | 9.5 | 5.4 |
| 15 | 7.0 | 39 | 58 | 52 | 44 | 161 | 71 | 70 | 38 | 14 | 9.1 | 5.2 |
| 16 | 10 | 36 | 54 | 42 | 54 | 129 | 87 | 61 | 34 | 12 | 8.5 | 4.9 |
| 17 | 11 | 32 | 52 | 44 | 43 | 111 | 89 | 61 | 31 | 10 | 8.3 | 4.7 |
| 18 | 11 | 29 | 48 | 43 | 36 | 96 | 89 | 55 | 30 | 9.0 | 26 | 4.7 |
| 19 | 9.4 | 128 | 57 | 42 | 34 | 78 | 84 | 53 | 26 | 8.1 | 36 | 4.4 |
| 20 | 8.7 | 206 | 100 | 36 | 47 | 71 | 77 | 44 | 22 | 7.3 | 22 | 4.4 |
| 21 | 8.2 | 126 | 193 | 30 | 74 | 63 | 68 | 47 | 20 | 7.0 | 29 | 4.2 |
| 22 | 8.0 | 86 | 320 | 33 | 127 | 59 | 60 | 67 | 18 | 6.6 | 22 | 3.9 |
| 23 | 10 | 69 | 250 | 34 | 278 | 92 | 54 | 253 | 17 | 6.5 | 17 | 3.9 |
| 24 | 14 | 57 | 186 | 33 | 621 | 181 | 50 | 738 | 16 | 5.7 | 16 | 3.9 |
| 25 | 13 | 46 | 341 | 32 | 762 | 184 | 46 | 383 | 15 | 9.1 | 46 | 3.5 |
| 26 | 12 | 40 | 271 | 30 | 646 | 153 | 44 | 221 | 13 | 58 | 53 | 3.5 |
| 27 | 11 | 34 | 190 | 25 | 423 | 129 | 41 | 150 | 13 | 40 | 42 | 3.5 |
| 28 | 12 | 311 | 138 | 27 | 273 | 112 | 42 | 112 | 13 | 23 | 31 | 3.5 |
| 29 | 41 | 496 | 109 | 25 | --- | 107 | 39 | 89 | 12 | 17 | 24 | 3.5 |
| 30 | 39 | 237 | 90 | 24 | --- | 120 | 34 | 71 | 11 | 14 | 20 | 3.6 |
| 31 | 31 | --- | 88 | 25 | --- | 126 | --- | 62 | --- | 15 | 17 | --- |
| TOTAL | 476.3 | 2524 | 3563 | 2626 | 4736 | 3969 | 2201 | 5171 | 1080 | 455.2 | 733.4 | 187.8 |
| MEAN | 15.4 | 84.1 | 115 | 84.7 | 169 | 128 | 73.4 | 167 | 36.0 | 14.7 | 23.7 | 6.26 |
| MAX | 47 | 496 | 341 | 305 | 762 | 298 | 131 | 1060 | 94 | 58 | 64 | 14 |
| MIN | 7.0 | 20 | 48 | 24 | 34 | 59 | 34 | 32 | 11 | 5.7 | 8.3 | 3.5 |
| CFSM | .26 | 1.40 | 1.91 | 1.41 | 2.81 | 2.13 | 1.22 | 2.78 | .60 | .24 | .39 | .10 |
| IN. | .29 | 1.56 | 2.21 | 1.63 | 2.93 | 2.46 | 1.36 | 3.20 | .67 | .28 | .45 | .12 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 38432.2 | MEAN | 105 | MAX | 2560 | MIN | 4.6 | CFSM | 1.75 | IN. | 23.79 |
| WTR YR 1985 | TOTAL | 27722.7 | MEAN | 76.0 | MAX | 1060 | MIN | 3.5 | CFSM | 1.26 | IN. | 17.16 |

## 02011460 BACK CREEK NEAR SUNRISE, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1984 to September 1985.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 26.0°C, July 15, 16, Aug. 13; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 11.0 | 10.5 | 11.0 | 13.5 | 12.5 | 13.0 | 7.0 | 4.5 | 6.0 | 10.0 | 7.5 | 9.0 |
| 2 | 11.5 | 9.5 | 10.5 | 13.5 | 10.0 | 12.5 | 6.0 | 3.5 | 5.0 | 9.5 | 7.5 | 8.5 |
| 3 | 13.0 | 8.5 | 10.5 | 11.0 | 7.0 | 9.0 | 7.0 | 4.0 | 6.0 | 7.0 | 6.0 | 6.0 |
| 4 | 15.5 | 10.5 | 12.5 | 10.0 | 9.0 | 9.5 | 4.0 | 2.5 | 3.0 | 6.5 | 6.0 | 6.0 |
| 5 | 15.0 | 11.5 | 13.0 | 11.0 | 9.5 | 10.5 | 3.5 | 2.0 | 3.0 | 6.0 | 4.0 | 5.0 |
| 6 | 15.5 | 12.0 | 13.5 | 9.5 | 7.5 | 8.5 | 4.0 | .5 | 2.5 | 5.5 | 3.0 | 4.0 |
| 7 | 15.0 | 13.5 | 14.0 | 9.0 | 6.0 | 7.5 | 1.5 | .0 | .5 | 5.5 | 4.0 | 4.5 |
| 8 | 14.5 | 13.0 | 14.0 | 8.5 | 4.5 | 6.5 | 3.0 | .0 | 1.0 | 4.5 | 2.0 | 3.5 |
| 9 | 17.5 | 13.5 | 15.5 | 9.0 | 6.5 | 7.5 | 3.5 | .0 | 2.0 | 3.5 | 1.0 | 2.0 |
| 10 | 18.0 | 14.0 | 15.5 | 9.5 | 6.0 | 8.0 | 4.0 | 2.0 | 3.0 | 3.0 | 2.0 | 2.5 |
| 11 | 17.5 | 13.5 | 15.0 | 9.5 | 7.5 | 9.0 | 6.5 | 3.5 | 5.0 | 4.0 | 1.5 | 2.5 |
| 12 | 18.0 | 13.5 | 15.0 | 7.0 | 4.5 | 5.5 | 5.5 | 2.5 | 4.0 | 2.0 | .0 | 1.0 |
| 13 | 17.0 | 12.0 | 14.0 | 6.0 | 3.5 | 4.5 | 7.5 | 4.5 | 6.0 | 2.5 | .0 | 1.0 |
| 14 | 16.5 | 11.5 | 14.0 | 6.5 | 2.5 | 4.5 | 7.5 | 5.5 | 6.5 | 3.5 | .0 | 1.5 |
| 15 | 14.5 | 11.0 | 13.0 | 7.5 | 3.5 | 5.5 | 9.0 | 6.5 | 8.0 | 1.0 | .0 | .0 |
| 16 | 18.0 | 13.5 | 15.0 | 7.5 | 4.0 | 6.0 | 9.0 | 7.0 | 7.5 | .0 | .0 | .0 |
| 17 | 17.0 | 15.0 | 16.0 | 5.5 | 2.0 | 3.5 | 10.0 | 7.5 | 8.5 | 1.5 | .0 | .5 |
| 18 | 18.5 | 15.0 | 16.5 | 4.0 | 3.0 | 3.5 | 10.0 | 7.5 | 8.5 | 1.5 | .5 | 1.0 |
| 19 | 19.0 | 15.0 | 17.0 | 5.5 | 4.0 | 5.0 | 9.5 | 8.0 | 8.5 | 2.0 | .0 | .5 |
| 20 | 18.0 | 15.5 | 16.5 | 5.0 | 3.0 | 4.0 | 8.0 | 6.0 | 7.0 | .0 | .0 | .0 |
| 21 | 18.0 | 14.5 | 16.5 | 5.0 | 2.0 | 3.0 | 7.5 | 6.5 | 7.0 | .0 | .0 | .0 |
| 22 | 18.0 | 15.5 | 16.5 | 4.5 | 1.0 | 2.5 | 8.5 | 5.5 | 7.5 | .0 | .0 | .0 |
| 23 | 17.0 | 16.0 | 16.5 | 4.5 | 1.0 | 2.5 | 6.0 | 4.5 | 5.0 | .0 | .0 | .0 |
| 24 | 17.0 | 15.0 | 16.0 | 5.0 | 1.5 | 3.0 | 5.5 | 3.0 | 4.5 | .0 | .0 | .0 |
| 25 | 16.5 | 14.5 | 15.5 | 5.0 | 1.5 | 3.0 | 6.0 | 3.5 | 5.5 | .0 | .0 | .0 |
| 26 | 18.5 | 15.5 | 16.5 | 5.5 | 2.0 | 3.5 | 5.0 | 2.5 | 4.0 | .0 | .0 | .0 |
| 27 | 18.0 | 13.5 | 15.5 | 7.5 | 2.5 | 5.0 | 6.0 | 4.0 | 5.0 | .0 | .0 | .0 |
| 28 | 17.5 | 13.0 | 15.5 | 8.5 | 6.0 | 7.5 | 9.0 | 5.5 | 7.0 | .5 | .0 | .0 |
| 29 | 18.0 | 15.0 | 16.0 | 7.0 | 5.0 | 6.0 | 10.0 | 6.5 | 8.0 | .5 | .0 | .0 |
| 30 | 14.5 | 12.5 | 13.5 | 6.5 | 3.5 | 5.5 | 9.0 | 8.0 | 8.5 | .0 | .0 | .0 |
| 31 | 16.0 | 12.5 | 14.0 | --- | --- | --- | 8.0 | 7.0 | 7.5 | .5 | .0 | .0 |
| MONTH | 19.0 | 8.5 | 14.5 | 13.5 | 1.0 | 6.0 | 10.0 | .0 | 5.5 | 10.0 | .0 | 2.0 |

## 02011460 BACK CREEK NEAR SUNRISE, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FEBRUARY | | | MARCH | | | APRIL | | | MAY | | |
| 1 | .0 | .0 | .0 | 6.5 | 2.5 | 4.5 | 12.0 | 7.0 | 9.0 | 18.5 | 11.5 | 15.5 |
| 2 | 2.5 | .5 | 1.5 | 9.0 | 4.5 | 6.0 | 9.0 | 5.5 | 7.0 | 16.0 | 13.5 | 14.5 |
| 3 | 3.0 | .0 | 1.5 | 9.0 | 3.5 | 6.0 | 8.5 | 4.0 | 6.0 | 13.0 | 10.0 | 11.5 |
| 4 | 2.5 | .0 | 1.0 | 6.5 | 5.5 | 6.0 | 12.5 | 5.0 | 8.5 | 14.5 | 8.0 | 11.0 |
| 5 | 2.5 | 1.0 | 1.5 | 10.0 | 5.0 | 7.0 | 14.5 | 8.0 | 11.0 | 15.5 | 9.0 | 12.0 |
| 6 | 4.0 | 1.5 | 2.5 | 8.0 | 3.0 | 5.0 | 11.5 | 7.5 | 9.5 | 16.0 | 10.5 | 13.0 |
| 7 | 2.5 | .0 | 1.0 | 8.0 | 2.5 | 5.0 | 7.5 | 5.5 | 6.5 | 17.0 | 12.5 | 14.5 |
| 8 | .0 | .0 | .0 | 7.0 | 5.0 | 6.0 | 8.0 | 4.5 | 6.0 | 17.0 | 10.5 | 13.5 |
| 9 | .0 | .0 | .0 | 10.0 | 5.0 | 7.0 | 7.5 | 3.0 | 5.0 | 18.0 | 10.5 | 14.0 |
| 10 | 1.0 | .0 | .0 | 10.0 | 3.5 | 6.5 | 10.0 | 1.5 | 5.5 | 17.0 | 11.5 | 14.0 |
| 11 | 1.5 | .0 | 1.0 | 5.5 | 4.0 | 5.0 | 9.5 | 5.5 | 7.0 | 18.0 | 12.5 | 15.5 |
| 12 | 1.0 | .0 | .5 | 7.0 | 4.5 | 5.5 | 13.0 | 5.5 | 9.0 | 17.5 | 13.5 | 15.5 |
| 13 | 2.0 | .0 | .5 | 8.0 | 3.5 | 6.0 | 12.0 | 8.0 | 10.0 | 18.0 | 12.5 | 14.5 |
| 14 | 1.0 | .0 | .5 | 7.5 | 5.5 | 6.5 | 12.0 | 9.5 | 10.5 | 19.5 | 12.5 | 15.5 |
| 15 | 2.0 | .0 | .5 | 8.5 | 4.0 | 6.0 | 12.5 | 9.5 | 11.0 | 18.0 | 14.0 | 15.5 |
| 16 | 1.0 | .0 | .0 | 9.0 | 2.5 | 5.5 | 14.5 | 10.5 | 12.0 | 19.0 | 14.0 | 16.0 |
| 17 | 3.5 | .0 | 1.5 | 9.0 | 4.5 | 6.0 | 15.0 | 8.5 | 11.5 | 15.0 | 13.0 | 14.0 |
| 18 | 2.5 | .0 | 1.0 | 7.5 | 2.5 | 4.5 | 17.0 | 8.0 | 12.5 | 17.0 | 11.0 | 13.5 |
| 19 | 6.0 | 1.5 | 3.0 | 8.5 | 1.0 | 4.5 | 19.0 | 11.0 | 14.5 | 18.0 | 10.0 | 13.5 |
| 20 | 5.5 | .0 | 2.0 | 9.0 | 3.0 | 6.0 | 17.0 | 11.0 | 14.0 | 20.0 | 11.0 | 15.0 |
| 21 | 5.0 | .0 | 2.0 | 7.5 | 4.5 | 6.0 | 16.5 | 11.0 | 14.0 | 17.5 | 14.0 | 15.5 |
| 22 | 5.0 | 1.5 | 3.0 | 5.0 | 3.5 | 4.0 | 16.0 | 10.5 | 13.5 | 15.5 | 13.5 | 14.5 |
| 23 | 7.0 | 2.5 | 4.0 | 8.0 | 4.0 | 6.0 | 17.0 | 12.0 | 14.5 | 14.0 | 11.5 | 13.5 |
| 24 | 8.0 | 3.5 | 5.5 | 9.5 | 6.0 | 7.0 | 18.5 | 12.5 | 15.5 | 11.5 | 10.5 | 11.0 |
| 25 | 7.5 | 6.0 | 6.5 | 7.5 | 5.0 | 6.0 | 18.5 | 13.0 | 15.0 | 14.0 | 10.0 | 12.0 |
| 26 | 8.5 | 6.0 | 6.5 | 10.0 | 3.0 | 6.0 | 19.5 | 10.5 | 14.5 | 16.0 | 10.0 | 13.0 |
| 27 | 8.0 | 4.5 | 6.0 | 11.0 | 4.0 | 7.5 | 16.5 | 11.5 | 14.0 | 17.0 | 11.0 | 14.0 |
| 28 | 7.5 | 3.0 | 5.0 | 13.5 | 8.0 | 10.5 | 17.0 | 14.0 | 15.0 | 15.0 | 12.5 | 14.0 |
| 29 | --- | --- | --- | 14.0 | 10.0 | 11.5 | 19.5 | 11.0 | 15.0 | 17.0 | 13.0 | 14.5 |
| 30 | --- | --- | --- | 14.0 | 10.0 | 12.0 | 20.0 | 10.5 | 15.0 | 14.5 | 13.5 | 14.0 |
| 31 | --- | --- | --- | 11.0 | 8.5 | 9.5 | --- | --- | --- | 19.5 | 13.5 | 16.0 |
| MONTH | 8.5 | .0 | 2.0 | 14.0 | 1.0 | 6.5 | 20.0 | 1.5 | 11.0 | 20.0 | 8.0 | 14.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | | |
| 1 | 21.5 | 15.0 | 17.5 | 18.0 | 16.0 | 17.0 | 21.5 | 18.0 | 20.0 | 21.5 | 16.0 | 18.5 |
| 2 | 18.0 | 14.0 | 16.0 | 20.0 | 15.5 | 17.5 | 21.5 | 16.5 | 18.5 | 22.5 | 17.0 | 19.5 |
| 3 | 19.5 | 13.5 | 16.5 | 20.5 | 16.5 | 18.0 | 21.5 | 15.5 | 18.0 | 23.5 | 17.5 | 20.0 |
| 4 | 18.5 | 15.0 | 16.5 | 21.5 | 16.5 | 18.5 | 21.5 | 15.5 | 18.0 | 23.5 | 18.0 | 20.5 |
| 5 | 21.0 | 15.5 | 18.0 | 23.0 | 16.5 | 19.5 | 20.0 | 16.0 | 18.0 | 23.0 | 17.5 | 20.0 |
| 6 | 20.5 | 16.5 | 18.5 | 20.5 | 17.5 | 19.0 | 19.5 | 16.5 | 18.0 | 21.5 | 19.0 | 20.0 |
| 7 | 17.5 | 14.5 | 15.0 | 23.5 | 17.0 | 19.5 | 19.5 | 17.0 | 18.5 | 23.5 | 18.5 | 20.5 |
| 8 | 20.5 | 14.5 | 17.0 | 24.5 | 18.0 | 20.5 | 23.5 | 18.0 | 20.5 | 24.5 | 19.0 | 21.5 |
| 9 | 19.5 | 15.0 | 17.0 | 25.0 | 18.5 | 21.5 | 24.5 | 19.5 | 21.5 | 24.0 | 20.0 | 21.5 |
| 10 | 21.5 | 16.0 | 18.5 | 21.0 | 18.0 | 19.0 | 24.5 | 19.5 | 22.0 | 23.5 | 19.0 | 21.0 |
| 11 | 21.5 | 16.0 | 19.0 | 24.5 | 16.5 | 20.0 | 23.0 | 18.5 | 21.0 | 20.5 | 18.5 | 19.0 |
| 12 | 19.5 | 16.0 | 18.5 | 23.0 | 18.5 | 20.5 | 22.0 | 19.0 | 20.5 | 18.0 | 15.0 | 17.0 |
| 13 | 15.5 | 12.5 | 14.0 | 24.0 | 19.0 | 21.0 | 26.0 | 19.5 | 22.0 | 17.5 | 12.0 | 14.5 |
| 14 | 16.5 | 10.5 | 13.5 | 25.0 | 19.0 | 21.5 | 25.0 | 20.0 | 22.0 | 17.0 | 10.0 | 13.0 |
| 15 | 17.0 | 13.0 | 15.0 | 26.0 | 20.5 | 22.5 | 25.5 | 20.5 | 22.5 | 17.0 | 9.5 | 13.0 |
| 16 | 18.5 | 14.0 | 16.0 | 26.0 | 20.0 | 22.0 | 23.0 | 20.0 | 21.5 | 18.0 | 10.5 | 13.5 |
| 17 | 22.0 | 14.5 | 18.0 | 25.0 | 18.0 | 21.5 | 20.5 | 19.0 | 19.5 | 18.0 | 11.0 | 14.0 |
| 18 | 20.0 | 17.0 | 18.5 | 25.0 | 18.0 | 21.0 | 19.5 | 18.0 | 18.5 | 18.5 | 11.5 | 14.5 |
| 19 | 19.5 | 14.5 | 17.0 | 25.5 | 18.5 | 21.5 | 23.0 | 17.5 | 19.5 | 19.0 | 12.5 | 15.5 |
| 20 | 18.5 | 14.0 | 16.0 | 25.0 | 18.5 | 21.5 | 21.5 | 18.0 | 20.0 | 19.5 | 13.0 | 16.0 |
| 21 | 18.5 | 12.5 | 15.5 | 24.5 | 20.0 | 22.0 | 23.0 | 18.5 | 20.0 | 19.5 | 13.5 | 16.5 |
| 22 | 20.5 | 14.0 | 17.0 | 24.5 | 19.5 | 21.5 | 20.0 | 16.0 | 18.0 | 17.5 | 15.0 | 16.5 |
| 23 | 22.0 | 17.0 | 19.0 | 24.5 | 18.5 | 21.0 | 20.0 | 15.0 | 17.5 | 19.5 | 14.5 | 16.5 |
| 24 | 24.0 | 16.5 | 20.0 | 23.5 | 16.5 | 20.0 | 17.5 | 16.0 | 17.0 | 18.5 | 14.0 | 16.0 |
| 25 | 24.5 | 18.0 | 21.0 | 20.0 | 19.0 | 19.5 | 18.5 | 16.5 | 17.5 | 17.5 | 11.0 | 14.0 |
| 26 | 22.0 | 15.5 | 18.5 | 21.5 | 18.5 | 19.5 | 20.5 | 17.0 | 18.5 | 17.5 | 14.0 | 15.5 |
| 27 | 21.0 | 14.0 | 17.5 | 24.5 | 18.5 | 21.0 | 21.0 | 17.5 | 19.0 | 16.0 | 13.0 | 14.5 |
| 28 | 19.5 | 15.0 | 17.5 | 22.5 | 17.0 | 19.5 | 21.5 | 16.0 | 18.5 | 17.0 | 11.5 | 13.5 |
| 29 | 22.0 | 15.0 | 18.5 | 23.5 | 18.5 | 20.5 | 21.5 | 16.0 | 18.5 | 16.5 | 10.0 | 13.0 |
| 30 | 20.5 | 16.0 | 18.5 | 25.5 | 19.5 | 22.0 | 19.5 | 16.5 | 18.0 | 17.0 | 10.0 | 13.0 |
| 31 | --- | --- | --- | 23.5 | 20.0 | 21.5 | 20.0 | 16.0 | 18.0 | --- | --- | --- |
| MONTH | 24.5 | 10.5 | 17.5 | 26.0 | 15.5 | 20.5 | 26.0 | 15.0 | 19.5 | 24.5 | 9.5 | 16.5 |
| YEAR | 26.0 | .0 | 11.5 | | | | | | | | | |

## 02011470 BACK CREEK AT SUNRISE, VA

**LOCATION.**--Lat 38°11'25", long 79°48'43", Bath County, Hydrologic Unit 02080201, on left bank 75 ft upstream from bridge on State Highway 600 at Sunrise, 180 ft upstream from Beaver Run, 0.5 mi downstream from Back Creek Dam, and 7.6 mi northeast of Mountain Grove.

**DRAINAGE AREA.**--76.1 $\mathrm{mi}^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1984 to September 1985.

**GAGE.**--Water-stage recorder. Concrete control since Oct. 24, 1984. Datum of gage is 1,968.52 ft above National Geodetic Vertical Datum of 1929 (Virginia Power bench mark).

**REMARKS.**--Estimated daily discharges: Oct. 8-23 and June 28 to July 19. Records good except those for periods of doubtful or no gage-height record, Oct. 8-23 and June 28 to July 19, which are fair. Flow regulated since October 1984 by Back Creek Lake 0.5 mi upstream.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 2,360 $\mathrm{ft}^3/\mathrm{s}$, May 3, gage height, 7.81 ft, from rating curve extended above 800 $\mathrm{ft}^3/\mathrm{s}$ on basis of release from Back Creek Lake at gage height 11.37 ft; minimum daily, 5.2 $\mathrm{ft}^3/\mathrm{s}$, Nov. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 5.4 | 15 | 16 | 23 | 246 | 173 | 50 | 68 | 14 | 18 | 18 |
| 2 | 13 | 5.3 | 13 | 23 | 36 | 194 | 173 | 50 | 55 | 15 | 24 | 18 |
| 3 | 10 | 5.2 | 12 | 27 | 25 | 173 | 139 | 1190 | 39 | 14 | 23 | 14 |
| 4 | 9.1 | 6.4 | 11 | 37 | 20 | 137 | 122 | 456 | 42 | 13 | 21 | 11 |
| 5 | 7.6 | 8.2 | 11 | 26 | 18 | 116 | 102 | 189 | 42 | 12 | 13 | 11 |
| 6 | 9.2 | 11 | 11 | 20 | 23 | 98 | 108 | 135 | 42 | 13 | 15 | 11 |
| 7 | 9.7 | 7.1 | 10 | 18 | 17 | 85 | 95 | 106 | 44 | 15 | 16 | 11 |
| 8 | 9.8 | 6.7 | 10 | 16 | 16 | 82 | 88 | 88 | 82 | 13 | 18 | 11 |
| 9 | 10 | 6.4 | 10 | 14 | 15 | 93 | 78 | 74 | 110 | 12 | 17 | 11 |
| 10 | 10 | 6.2 | 10 | 14 | 15 | 88 | 77 | 69 | 93 | 14 | 15 | 11 |
| 11 | 10 | 7.3 | 11 | 13 | 15 | 96 | 91 | 69 | 72 | 14 | 15 | 11 |
| 12 | 10 | 7.2 | 14 | 12 | 22 | 442 | 93 | 100 | 49 | 16 | 16 | 11 |
| 13 | 9.5 | 7.1 | 14 | 12 | 19 | 180 | 92 | 231 | 49 | 16 | 17 | 11 |
| 14 | 9.5 | 7.9 | 13 | 12 | 17 | 20 | 92 | 150 | 49 | 15 | 15 | 10 |
| 15 | 9.0 | 10 | 12 | 12 | 16 | 29 | 86 | 102 | 49 | 14 | 15 | 10 |
| 16 | 9.5 | 10 | 12 | 11 | 16 | 134 | 88 | 87 | 30 | 13 | 15 | 11 |
| 17 | 10 | 10 | 12 | 12 | 16 | 134 | 96 | 71 | 19 | 12 | 15 | 11 |
| 18 | 10 | 10 | 12 | 12 | 16 | 125 | 96 | 71 | 16 | 12 | 19 | 11 |
| 19 | 10 | 20 | 14 | 12 | 16 | 112 | 97 | 71 | 26 | 12 | 13 | 11 |
| 20 | 9.5 | 19 | 16 | 11 | 18 | 92 | 100 | 51 | 50 | 10 | 12 | 11 |
| 21 | 8.0 | 12 | 23 | 11 | 19 | 91 | 94 | 36 | 77 | 10 | 12 | 11 |
| 22 | 9.0 | 13 | 31 | 11 | 20 | 93 | 74 | 28 | 74 | 9.9 | 12 | 11 |
| 23 | 9.5 | 14 | 22 | 11 | 28 | 138 | 64 | 311 | 65 | 9.9 | 12 | 11 |
| 24 | 7.8 | 13 | 19 | 11 | 217 | 222 | 57 | 1080 | 68 | 9.8 | 12 | 11 |
| 25 | 5.8 | 12 | 26 | 12 | 770 | 225 | 58 | 391 | 36 | 12 | 13 | 11 |
| 26 | 11 | 13 | 21 | 12 | 888 | 201 | 57 | 280 | 13 | 14 | 12 | 11 |
| 27 | 11 | 14 | 18 | 12 | 442 | 157 | 53 | 138 | 12 | 11 | 24 | 11 |
| 28 | 12 | 41 | 16 | 12 | 373 | 128 | 50 | 122 | 13 | 11 | 19 | 11 |
| 29 | 5.9 | 33 | 15 | 12 | --- | 114 | 50 | 72 | 14 | 10 | 16 | 11 |
| 30 | 5.6 | 19 | 14 | 12 | --- | 138 | 50 | 41 | 13 | 12 | 21 | 11 |
| 31 | 5.5 | --- | 15 | 13 | --- | 150 | --- | 62 | --- | 15 | 18 | --- |
| TOTAL | 288.5 | 360.4 | 463 | 459 | 3136 | 4333 | 2693 | 5971 | 1411 | 393.6 | 503 | 345 |
| MEAN | 9.31 | 12.0 | 14.9 | 14.8 | 112 | 140 | 89.8 | 193 | 47.0 | 12.7 | 16.2 | 11.5 |
| MAX | 13 | 41 | 31 | 37 | 888 | 442 | 173 | 1190 | 110 | 16 | 24 | 18 |
| MIN | 5.5 | 5.2 | 10 | 11 | 15 | 20 | 50 | 28 | 12 | 9.8 | 12 | 10 |
| (*) | +9 | +85 | +155 | +89 | +126 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN† | 18.3 | 97.0 | 170 | 104 | 238 | 140 | 89.8 | 193 | 47.0 | 12.7 | 16.2 | 11.5 |
| CFSM† | .24 | 1.27 | 2.23 | 1.37 | 3.13 | 1.84 | 1.18 | 2.54 | .62 | .17 | .21 | .15 |
| IN.† | .28 | 1.42 | 2.58 | 1.57 | 3.26 | 2.12 | 1.32 | 2.92 | .69 | .19 | .25 | .17 |

WTR YR 1985 TOTAL 20356.5 MEAN 55.8 MAX 1190 MIN 5.2 MEAN† 93.8 CFSM† 1.23 IN.† 16.73

* Change in contents, equivalent in cubic feet per second, for the initial storage in Back Creek Lake; provided by Virginia Power.

† Adjusted for change in contents.

### 02011470 BACK CREEK AT SUNRISE, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1984 to September 1985.

INSTRUMENTATION.--Water-temperature recorder since October 1984.

REMARKS.--Interruption in the record, Oct. 5-22, was due to sensor being out of the water during construction of concrete control.

EXTREMES FOR CURRENT YEAR.--Maximum, 27.5°C, Aug. 10; minimum, 0.0°C, Jan. 20, 21.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 12.5 | 11.0 | 11.5 | 14.5 | 12.5 | 13.5 | 8.0 | 4.5 | 6.0 | 10.5 | 7.0 | 8.5 |
| 2 | 14.5 | 10.5 | 11.5 | 15.5 | 10.0 | 13.5 | 7.5 | 4.0 | 5.5 | 9.0 | 7.0 | 8.0 |
| 3 | 15.5 | 10.5 | 12.0 | 15.0 | 8.0 | 11.0 | 8.0 | 4.0 | 6.0 | 6.5 | 5.5 | 6.0 |
| 4 | 17.0 | 11.0 | 13.5 | 12.0 | 10.5 | 11.0 | 5.5 | 2.5 | 4.0 | 7.0 | 6.0 | 6.5 |
| 5 | --- | --- | --- | 12.0 | 9.5 | 10.5 | 4.5 | 1.5 | 3.5 | 5.5 | 4.0 | 5.0 |
| 6 | --- | --- | --- | 11.0 | 7.5 | 9.5 | 5.0 | 1.5 | 3.0 | 6.5 | 3.5 | 4.5 |
| 7 | --- | --- | --- | 11.5 | 6.0 | 8.0 | 3.5 | 1.0 | 2.0 | 5.0 | 4.0 | 4.5 |
| 8 | --- | --- | --- | 11.5 | 5.0 | 7.5 | 5.0 | 1.0 | 2.5 | 6.0 | 2.5 | 4.0 |
| 9 | --- | --- | --- | 10.5 | 6.5 | 8.5 | 6.0 | 2.0 | 3.0 | 4.5 | 1.5 | 3.0 |
| 10 | --- | --- | --- | 12.0 | 6.5 | 9.0 | 4.5 | 3.0 | 3.5 | 4.0 | 2.5 | 3.0 |
| 11 | --- | --- | --- | 10.0 | 7.5 | 9.0 | 8.0 | 3.5 | 5.0 | 4.0 | 2.0 | 2.5 |
| 12 | --- | --- | --- | 7.5 | 5.5 | 6.5 | 7.0 | 3.0 | 4.5 | 3.0 | 1.5 | 2.0 |
| 13 | --- | --- | --- | 9.5 | 4.5 | 6.0 | 7.5 | 4.5 | 6.0 | 4.5 | 1.5 | 2.5 |
| 14 | --- | --- | --- | 9.0 | 4.0 | 6.0 | 7.5 | 5.0 | 6.0 | 4.5 | 1.5 | 2.5 |
| 15 | --- | --- | --- | 9.5 | 4.5 | 7.0 | 9.5 | 6.0 | 7.0 | 3.5 | 1.5 | 2.0 |
| 16 | --- | --- | --- | 9.5 | 4.5 | 7.0 | 8.5 | 6.0 | 7.0 | 4.0 | 1.0 | 2.0 |
| 17 | --- | --- | --- | 8.5 | 3.5 | 5.5 | 10.0 | 6.5 | 7.5 | 3.0 | 1.5 | 2.0 |
| 18 | --- | --- | --- | 6.0 | 4.5 | 5.0 | 9.0 | 6.5 | 7.5 | 3.0 | 2.0 | 2.5 |
| 19 | --- | --- | --- | 6.0 | 5.0 | 5.5 | 8.5 | 6.5 | 7.5 | 4.0 | 1.5 | 2.5 |
| 20 | --- | --- | --- | 6.5 | 3.0 | 4.5 | 8.5 | 5.5 | 6.5 | 2.0 | .0 | 1.0 |
| 21 | --- | --- | --- | 6.5 | 2.5 | 3.5 | 7.5 | 6.0 | 6.5 | 1.5 | .0 | .5 |
| 22 | --- | --- | --- | 6.0 | 1.5 | 3.0 | 8.5 | 5.0 | 7.0 | 2.5 | .5 | 1.5 |
| 23 | 18.5 | 16.0 | 17.0 | 6.5 | 2.0 | 3.5 | 7.0 | 4.0 | 5.0 | 4.0 | .5 | 2.0 |
| 24 | 18.5 | 16.0 | 16.5 | 7.0 | 2.5 | 4.0 | 5.5 | 3.5 | 4.5 | 4.0 | 1.5 | 2.5 |
| 25 | 18.0 | 15.5 | 16.5 | 7.0 | 2.0 | 4.0 | 6.0 | 3.5 | 5.0 | 3.5 | 1.5 | 2.0 |
| 26 | 19.5 | 15.5 | 17.0 | 7.5 | 2.5 | 4.5 | 5.5 | 2.5 | 4.0 | 3.5 | 1.0 | 1.5 |
| 27 | 20.0 | 14.5 | 16.5 | 8.0 | 3.5 | 5.5 | 6.0 | 3.5 | 5.0 | 3.5 | 1.0 | 2.0 |
| 28 | 20.0 | 14.5 | 16.5 | 9.0 | 6.0 | 7.0 | 9.5 | 5.5 | 6.5 | 4.0 | 2.0 | 2.5 |
| 29 | 19.0 | 14.0 | 16.5 | 7.0 | 5.0 | 6.0 | 10.5 | 6.0 | 7.5 | 5.0 | 1.5 | 2.5 |
| 30 | 16.0 | 13.0 | 14.5 | 7.5 | 4.0 | 6.0 | 8.5 | 7.0 | 8.0 | 4.5 | 1.5 | 2.5 |
| 31 | 19.0 | 13.5 | 15.0 | --- | --- | --- | 8.0 | 7.0 | 7.0 | 3.5 | 1.0 | 2.5 |
| MONTH | 20.0 | 10.5 | 15.0 | 15.5 | 1.5 | 7.0 | 10.5 | 1.0 | 5.5 | 10.5 | .0 | 3.0 |

## 02011470 BACK CREEK AT SUNRISE, VA--Continued

## WATER-QUALITY RECORDS

**PERIOD OF DAILY RECORD.**--
WATER TEMPERATURE: October 1984 to September 1985.

**INSTRUMENTATION.**--Water-temperature recorder since October 1984.

**REMARKS.**--Interruption in the record, Oct. 5-22, was due to sensor being out of the water during construction of concrete control.

**EXTREMES FOR CURRENT YEAR.**--Maximum, 27.5°C, Aug. 10; minimum, 0.0°C, Jan. 20, 21.

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 12.5 | 11.0 | 11.5 | 14.5 | 12.5 | 13.5 | 8.0 | 4.5 | 6.0 | 10.5 | 7.0 | 8.5 |
| 2 | 14.5 | 10.5 | 11.5 | 15.5 | 10.0 | 13.5 | 7.5 | 4.0 | 5.5 | 9.0 | 7.0 | 8.0 |
| 3 | 15.5 | 10.5 | 12.0 | 15.0 | 8.0 | 11.0 | 8.0 | 4.0 | 6.0 | 6.5 | 5.5 | 6.0 |
| 4 | 17.0 | 11.0 | 13.5 | 12.0 | 10.5 | 11.0 | 5.5 | 2.5 | 4.0 | 7.0 | 6.0 | 6.5 |
| 5 | --- | --- | --- | 12.0 | 9.5 | 10.5 | 4.5 | 1.5 | 3.5 | 5.5 | 4.0 | 5.0 |
| 6 | --- | --- | --- | 11.0 | 7.5 | 9.5 | 5.0 | 1.5 | 3.0 | 6.5 | 3.5 | 4.5 |
| 7 | --- | --- | --- | 11.5 | 6.0 | 8.0 | 3.5 | 1.0 | 2.0 | 5.0 | 4.0 | 4.5 |
| 8 | --- | --- | --- | 11.5 | 5.0 | 7.5 | 5.0 | 1.0 | 2.5 | 6.0 | 2.5 | 4.0 |
| 9 | --- | --- | --- | 10.5 | 6.5 | 8.5 | 6.0 | 2.0 | 3.0 | 4.5 | 1.5 | 3.0 |
| 10 | --- | --- | --- | 12.0 | 6.5 | 9.0 | 4.5 | 3.0 | 3.5 | 4.0 | 2.5 | 3.0 |
| 11 | --- | --- | --- | 10.0 | 7.5 | 9.0 | 8.0 | 3.5 | 5.0 | 4.0 | 2.0 | 2.5 |
| 12 | --- | --- | --- | 7.5 | 5.5 | 6.5 | 7.0 | 3.0 | 4.5 | 3.0 | 1.5 | 2.0 |
| 13 | --- | --- | --- | 9.5 | 4.5 | 6.0 | 7.5 | 4.5 | 6.0 | 4.5 | 1.5 | 2.5 |
| 14 | --- | --- | --- | 9.0 | 4.0 | 6.0 | 7.5 | 5.0 | 6.0 | 4.5 | 1.5 | 2.5 |
| 15 | --- | --- | --- | 9.5 | 4.5 | 7.0 | 9.5 | 6.0 | 7.0 | 3.5 | 1.5 | 2.0 |
| 16 | --- | --- | --- | 9.5 | 4.5 | 7.0 | 8.5 | 6.0 | 7.0 | 4.0 | 1.0 | 2.0 |
| 17 | --- | --- | --- | 8.5 | 3.5 | 5.5 | 10.0 | 6.5 | 7.5 | 3.0 | 1.5 | 2.0 |
| 18 | --- | --- | --- | 6.0 | 4.5 | 5.0 | 9.0 | 6.5 | 7.5 | 3.0 | 2.0 | 2.5 |
| 19 | --- | --- | --- | 6.0 | 5.0 | 5.5 | 8.5 | 6.5 | 7.5 | 4.0 | 1.5 | 2.5 |
| 20 | --- | --- | --- | 6.5 | 3.0 | 4.5 | 8.5 | 5.5 | 6.5 | 2.0 | .0 | 1.0 |
| 21 | --- | --- | --- | 6.5 | 2.5 | 3.5 | 7.5 | 6.0 | 6.5 | 1.5 | .0 | .5 |
| 22 | --- | --- | --- | 6.0 | 1.5 | 3.0 | 8.5 | 5.0 | 7.0 | 2.5 | .5 | 1.5 |
| 23 | 18.5 | 16.0 | 17.0 | 6.5 | 2.0 | 3.5 | 7.0 | 4.0 | 5.0 | 4.0 | .5 | 2.0 |
| 24 | 18.5 | 16.0 | 16.5 | 7.0 | 2.5 | 4.0 | 5.5 | 3.5 | 4.5 | 4.0 | 1.5 | 2.5 |
| 25 | 18.0 | 15.5 | 16.5 | 7.0 | 2.0 | 4.0 | 6.0 | 3.5 | 5.0 | 3.5 | 1.5 | 2.0 |
| 26 | 19.5 | 15.5 | 17.0 | 7.5 | 2.5 | 4.5 | 5.5 | 2.5 | 4.0 | 3.5 | 1.0 | 1.5 |
| 27 | 20.0 | 14.5 | 16.5 | 8.0 | 3.5 | 5.5 | 6.0 | 3.5 | 5.0 | 3.5 | 1.0 | 2.0 |
| 28 | 20.0 | 14.5 | 16.5 | 9.0 | 6.0 | 7.0 | 9.5 | 5.5 | 6.5 | 4.0 | 2.0 | 2.5 |
| 29 | 19.0 | 14.0 | 16.5 | 7.0 | 5.0 | 6.0 | 10.5 | 6.0 | 7.5 | 5.0 | 1.5 | 2.5 |
| 30 | 16.0 | 13.0 | 14.5 | 7.5 | 4.0 | 6.0 | 8.5 | 7.0 | 8.0 | 4.5 | 1.5 | 2.5 |
| 31 | 19.0 | 13.5 | 15.0 | --- | --- | --- | 8.0 | 7.0 | 7.0 | 3.5 | 1.0 | 2.5 |
| MONTH | 20.0 | 10.5 | 15.0 | 15.5 | 1.5 | 7.0 | 10.5 | 1.0 | 5.5 | 10.5 | .0 | 3.0 |

## 02011470 BACK CREEK AT SUNRISE, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 3.0 | 1.0 | 2.0 | 4.5 | 3.5 | 4.0 | 7.0 | 6.0 | 6.0 | 10.0 | 7.5 | 8.5 |
| 2 | 2.5 | 1.5 | 2.0 | 5.0 | 3.5 | 4.0 | 7.0 | 5.5 | 6.0 | 10.0 | 8.0 | 8.5 |
| 3 | 4.0 | 1.0 | 2.0 | 5.0 | 3.5 | 4.0 | 7.0 | 5.5 | 6.0 | 9.0 | 7.5 | 7.5 |
| 4 | 3.0 | 1.0 | 2.0 | 4.5 | 4.0 | 4.0 | 7.5 | 5.5 | 6.5 | 7.5 | 7.5 | 7.5 |
| 5 | 3.0 | 1.5 | 2.0 | 5.5 | 4.0 | 4.5 | 8.0 | 6.0 | 7.0 | 8.0 | 7.5 | 7.5 |
| 6 | 4.5 | 2.0 | 3.0 | 5.5 | 3.5 | 4.5 | 7.5 | 6.0 | 7.0 | 8.0 | 7.5 | 7.5 |
| 7 | 4.5 | 1.0 | 2.0 | 5.5 | 4.0 | 4.5 | 7.0 | 6.0 | 6.5 | 8.0 | 7.5 | 8.0 |
| 8 | 3.0 | .5 | 1.5 | 5.0 | 4.0 | 4.5 | 7.5 | 6.0 | 6.5 | 8.5 | 7.5 | 8.0 |
| 9 | 3.5 | .5 | 1.5 | 6.0 | 4.0 | 4.5 | 7.5 | 5.5 | 6.5 | 8.5 | 7.5 | 8.0 |
| 10 | 4.5 | 1.0 | 2.5 | 6.0 | 4.0 | 4.5 | 8.5 | 5.5 | 6.5 | 8.5 | 8.0 | 8.0 |
| 11 | 4.0 | 1.5 | 2.5 | 5.0 | 4.5 | 4.5 | 7.5 | 6.5 | 6.5 | 9.0 | 8.0 | 8.5 |
| 12 | 1.5 | 1.0 | 1.5 | 4.5 | 4.5 | 4.5 | 8.5 | 6.5 | 7.5 | 8.5 | 8.0 | 8.0 |
| 13 | 3.0 | 1.0 | 2.0 | 7.0 | 4.5 | 5.5 | 8.5 | 7.0 | 7.5 | 8.0 | 7.5 | 8.0 |
| 14 | 4.5 | 1.0 | 2.0 | 8.5 | 4.5 | 6.0 | 8.5 | 7.0 | 7.5 | 8.5 | 7.5 | 8.0 |
| 15 | 4.0 | 1.5 | 2.0 | 9.5 | 4.0 | 5.5 | 8.0 | 7.0 | 7.5 | 8.5 | 8.0 | 8.0 |
| 16 | 4.5 | 1.5 | 2.0 | 6.0 | 4.5 | 5.0 | 9.0 | 7.0 | 8.0 | 8.5 | 8.0 | 8.0 |
| 17 | 5.5 | 1.5 | 3.0 | 6.0 | 4.5 | 5.0 | 9.0 | 6.5 | 7.5 | 8.0 | 8.0 | 8.0 |
| 18 | 5.5 | 1.5 | 3.0 | 6.5 | 4.5 | 5.0 | 9.5 | 7.0 | 8.0 | 9.0 | 7.5 | 8.0 |
| 19 | 7.0 | 2.0 | 4.0 | 6.5 | 4.5 | 5.0 | 9.5 | 7.0 | 8.0 | 9.0 | 7.5 | 8.0 |
| 20 | 7.0 | 2.0 | 3.5 | 6.5 | 5.0 | 5.5 | 9.0 | 7.0 | 8.0 | 10.0 | 7.5 | 8.5 |
| 21 | 7.5 | 2.0 | 4.0 | 6.5 | 5.0 | 5.5 | 9.5 | 7.0 | 8.0 | 9.5 | 8.0 | 8.5 |
| 22 | 5.5 | 3.0 | 4.0 | 6.0 | 5.0 | 5.5 | 9.5 | 7.0 | 8.0 | 9.0 | 8.5 | 8.5 |
| 23 | 8.0 | 2.5 | 4.0 | 6.5 | 5.5 | 6.0 | 9.5 | 7.5 | 8.0 | 8.5 | 7.5 | 8.0 |
| 24 | 8.0 | 3.0 | 4.5 | 6.5 | 5.5 | 5.5 | 10.5 | 7.5 | 8.5 | 8.0 | 7.5 | 8.0 |
| 25 | 3.5 | 3.0 | 3.5 | 6.0 | 5.5 | 5.5 | 10.5 | 7.5 | 8.5 | 8.0 | 7.5 | 8.0 |
| 26 | 4.0 | 3.0 | 3.5 | 6.5 | 5.0 | 5.5 | 10.0 | 7.0 | 8.5 | 8.0 | 7.5 | 8.0 |
| 27 | 4.5 | 3.5 | 4.0 | 7.0 | 5.5 | 6.0 | 10.0 | 7.5 | 8.0 | 8.5 | 7.5 | 8.0 |
| 28 | 4.0 | 3.5 | 3.5 | 7.5 | 5.5 | 6.5 | 9.5 | 8.0 | 8.5 | 8.5 | 8.0 | 8.0 |
| 29 | --- | --- | --- | 7.5 | 6.0 | 6.5 | 10.5 | 7.5 | 8.5 | 10.0 | 8.0 | 9.0 |
| 30 | --- | --- | --- | 7.0 | 6.0 | 6.5 | 10.5 | 7.0 | 8.5 | 9.0 | 8.5 | 9.0 |
| 31 | --- | --- | --- | 6.0 | 6.0 | 6.0 | --- | --- | --- | 9.5 | 8.5 | 9.0 |
| MONTH | 8.0 | .5 | 3.0 | 9.5 | 3.5 | 5.0 | 10.5 | 5.5 | 7.5 | 10.0 | 7.5 | 8.0 |
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 10.5 | 8.5 | 9.5 | 15.0 | 13.0 | 13.5 | 20.0 | 15.0 | 17.5 | 14.5 | 11.0 | 12.0 |
| 2 | 10.5 | 8.5 | 9.0 | 17.5 | 13.0 | 14.0 | 22.0 | 18.5 | 19.5 | 14.5 | 11.5 | 12.5 |
| 3 | 11.5 | 9.0 | 10.0 | 17.0 | 13.0 | 14.5 | 23.5 | 17.5 | 20.0 | 17.0 | 11.5 | 13.0 |
| 4 | 11.5 | 9.0 | 9.5 | 17.5 | 13.0 | 14.5 | 24.5 | 18.0 | 20.5 | 16.5 | 12.0 | 13.5 |
| 5 | 12.0 | 9.0 | 10.0 | 18.5 | 13.0 | 15.0 | 25.0 | 21.0 | 22.5 | 17.0 | 11.5 | 13.5 |
| 6 | 11.5 | 9.5 | 10.0 | 17.0 | 13.5 | 14.5 | 23.5 | 21.0 | 22.0 | 15.5 | 12.0 | 13.5 |
| 7 | 10.0 | 9.5 | 10.0 | 19.0 | 13.5 | 15.5 | 23.5 | 21.5 | 22.5 | 16.5 | 12.0 | 13.5 |
| 8 | 12.0 | 9.5 | 10.0 | 19.5 | 13.5 | 16.0 | 27.0 | 21.5 | 23.0 | 17.0 | 12.0 | 13.5 |
| 9 | 11.0 | 9.5 | 10.0 | 19.5 | 14.0 | 16.0 | 27.0 | 21.5 | 23.5 | 16.5 | 12.5 | 13.5 |
| 10 | 11.0 | 9.5 | 10.0 | 17.0 | 14.0 | 15.0 | 27.5 | 22.5 | 24.0 | 17.0 | 12.0 | 13.5 |
| 11 | 11.5 | 9.5 | 10.5 | 20.0 | 14.0 | 16.0 | 26.0 | 21.5 | 23.5 | 14.5 | 12.0 | 13.0 |
| 12 | 11.5 | 10.0 | 10.5 | 19.5 | 14.5 | 16.0 | 26.0 | 21.5 | 23.5 | 14.0 | 11.0 | 12.0 |
| 13 | 11.0 | 10.0 | 10.0 | 18.5 | 14.5 | 16.0 | 26.5 | 22.5 | 24.0 | 15.5 | 10.5 | 12.0 |
| 14 | 11.0 | 10.0 | 10.5 | 20.0 | 14.5 | 16.5 | 27.0 | 22.0 | 24.0 | 15.5 | 10.0 | 12.0 |
| 15 | 12.0 | 10.0 | 10.5 | 20.0 | 14.5 | 16.5 | 26.5 | 22.5 | 24.0 | 16.0 | 10.0 | 12.0 |
| 16 | 13.0 | 10.5 | 11.5 | 20.5 | 14.5 | 16.5 | 25.0 | 22.0 | 23.0 | 16.0 | 10.5 | 12.5 |
| 17 | 16.0 | 10.5 | 13.0 | 20.5 | 14.0 | 16.5 | 23.5 | 22.0 | 22.5 | 16.0 | 10.5 | 12.5 |
| 18 | 15.0 | 11.5 | 12.5 | 20.5 | 14.5 | 16.5 | 22.0 | 13.0 | 16.5 | 16.0 | 11.0 | 12.5 |
| 19 | 14.5 | 10.5 | 12.0 | 20.0 | 14.5 | 16.5 | 17.0 | 12.5 | 14.0 | 16.5 | 11.0 | 13.0 |
| 20 | 12.0 | 10.5 | 11.0 | 20.0 | 14.5 | 16.5 | 16.0 | 12.0 | 13.5 | 16.5 | 11.5 | 13.0 |
| 21 | 12.0 | 10.5 | 11.0 | 19.5 | 15.0 | 16.5 | 17.0 | 12.0 | 13.5 | 15.5 | 11.5 | 13.0 |
| 22 | 12.5 | 10.5 | 11.5 | 18.5 | 15.0 | 16.5 | 15.5 | 11.5 | 13.0 | 13.5 | 12.0 | 12.5 |
| 23 | 12.5 | 11.0 | 11.5 | 20.5 | 14.5 | 16.5 | 16.0 | 11.0 | 12.5 | 16.0 | 11.5 | 13.0 |
| 24 | 12.5 | 11.0 | 11.5 | 20.5 | 14.5 | 17.0 | 13.0 | 11.5 | 12.0 | 15.0 | 11.0 | 12.5 |
| 25 | 15.0 | 11.5 | 12.5 | 18.5 | 15.5 | 16.5 | 14.5 | 12.0 | 12.5 | 15.5 | 10.5 | 12.5 |
| 26 | 21.5 | 11.5 | 14.0 | 20.5 | 16.5 | 17.5 | 16.5 | 12.0 | 13.5 | 14.0 | 12.0 | 12.5 |
| 27 | 17.5 | 11.5 | 14.0 | 21.0 | 15.5 | 17.0 | 13.5 | 11.5 | 12.0 | 12.5 | 11.5 | 12.0 |
| 28 | 16.5 | 12.0 | 13.5 | 19.0 | 14.5 | 16.0 | 16.5 | 11.5 | 13.0 | 15.5 | 11.0 | 12.5 |
| 29 | 18.0 | 12.0 | 14.0 | 19.5 | 14.5 | 16.5 | 17.0 | 11.0 | 13.0 | 15.0 | 11.0 | 12.5 |
| 30 | 17.0 | 12.5 | 14.0 | 21.5 | 14.5 | 17.5 | 14.5 | 11.0 | 12.0 | 15.5 | 11.0 | 12.5 |
| 31 | --- | --- | --- | 20.5 | 16.5 | 18.5 | 14.5 | 11.0 | 12.0 | --- | --- | --- |
| MONTH | 21.5 | 8.5 | 11.5 | 21.5 | 13.0 | 16.0 | 27.5 | 11.0 | 18.0 | 17.0 | 10.0 | 12.5 |
| YEAR | 27.5 | .0 | 9.0 | | | | | | | | | |

## 02011490 LITTLE BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°12'52", long 79°50'16", Bath County, Hydrologic Unit 02080201, in George Washington National Forest, on right bank 600 ft downstream from Long Spring Run, 1.2 mi downstream from Little Back Creek Dam, and 8.5 mi northeast of Mountain Grove.

DRAINAGE AREA.--4.91 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1985.

GAGE.--Water-stage recorder. Concrete control with rectangular weir plate. Datum of gage is 2,638.48 ft above National Geodetic Vertical Datum of 1929 (Virginia Power bench mark).

REMARKS.--Estimated daily discharges: Jan. 13-31 and Feb. 8-10, 14-20. Records good except those for periods with ice effect, Jan. 13-31 and Feb. 8-10, 14-20, which are fair. Flows regulated since January 1985 by Little Back Creek Lake 1.2 mi upstream, amount unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 254 $ft^3/s$, May 3, gage height, 3.50 ft, from rating curve extended above 30 $ft^3/s$ on basis of slope-area measurement at gage height 4.06 ft; minimum, 0.89 $ft^3/s$, Oct. 12, 13, gage height, 0.66 ft; minimum daily, 0.90 $ft^3/s$, Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.3 | 6.6 | 5.6 | 4.1 | 2.4 | 5.9 | 5.1 | 3.7 | 4.1 | 2.4 | 4.6 | 2.7 |
| 2 | 5.2 | 14 | 4.1 | 8.1 | 3.6 | 4.6 | 4.8 | 4.1 | 3.9 | 2.5 | 5.3 | 2.6 |
| 3 | 5.0 | 6.0 | 3.4 | 12 | 8.0 | 3.6 | 6.7 | 100 | 3.8 | 2.4 | 3.7 | 2.4 |
| 4 | 4.6 | 4.2 | 2.7 | 17 | 6.3 | 3.0 | 5.4 | 15 | 3.7 | 2.4 | 3.1 | 2.4 |
| 5 | 4.3 | 6.3 | 2.5 | 12 | 4.9 | 2.9 | 5.1 | 7.8 | 3.1 | 2.3 | 2.8 | 2.4 |
| 6 | 4.2 | 11 | 2.3 | 7.3 | 3.2 | 2.5 | 5.4 | 5.7 | 1.8 | 2.4 | 2.7 | 2.4 |
| 7 | 3.1 | 9.7 | 2.1 | 5.5 | 2.4 | 1.9 | 5.0 | 4.5 | 2.7 | 2.3 | 2.7 | 2.3 |
| 8 | 1.9 | 6.2 | 2.1 | 4.5 | 2.1 | 2.1 | 5.0 | 3.7 | 3.9 | 2.2 | 3.7 | 2.4 |
| 9 | 1.7 | 5.6 | 2.0 | 3.5 | 2.0 | 2.3 | 4.9 | 3.4 | 3.7 | 2.2 | 4.3 | 2.3 |
| 10 | 1.6 | 4.9 | 1.8 | 2.9 | 1.9 | 2.2 | 4.8 | 3.2 | 3.6 | 2.6 | 3.2 | 2.3 |
| 11 | 1.3 | 5.4 | 2.0 | 2.7 | 2.2 | 2.6 | 4.9 | 3.2 | 3.4 | 2.6 | 2.8 | 2.3 |
| 12 | 1.0 | 4.9 | 2.2 | 2.4 | 2.3 | 7.8 | 5.2 | 6.8 | 3.4 | 2.3 | 2.7 | 2.3 |
| 13 | .90 | 3.2 | 2.6 | 2.3 | 2.2 | 9.2 | 4.9 | 68 | 3.3 | 2.2 | 2.9 | 2.2 |
| 14 | 1.4 | 3.9 | 2.4 | 2.2 | 2.0 | 6.7 | 4.6 | 7.2 | 3.3 | 2.2 | 2.6 | 2.2 |
| 15 | 1.4 | 3.6 | 2.4 | 2.0 | 1.8 | 4.9 | 4.6 | 3.8 | 3.2 | 2.2 | 2.4 | 2.2 |
| 16 | 1.5 | 2.6 | 2.2 | 1.7 | 2.1 | 3.9 | 5.3 | 58 | 3.4 | 2.2 | 2.4 | 2.1 |
| 17 | 1.2 | 1.7 | 2.1 | 1.8 | 1.8 | 3.4 | 5.3 | 8.6 | 3.4 | 2.2 | 2.4 | 2.2 |
| 18 | 1.2 | 1.6 | 2.0 | 1.7 | 1.5 | 3.0 | 5.3 | 4.6 | 3.6 | 2.2 | 4.4 | 2.1 |
| 19 | 2.1 | 5.2 | 2.6 | 1.6 | 1.4 | 2.6 | 5.3 | 4.1 | 3.4 | 2.2 | 4.7 | 2.1 |
| 20 | 2.5 | 9.4 | 4.9 | 1.4 | 1.7 | 2.0 | 5.1 | 3.8 | 3.3 | 2.2 | 3.5 | 2.2 |
| 21 | 2.2 | 6.1 | 8.3 | 1.2 | 2.1 | 2.0 | 4.9 | 4.2 | 3.2 | 2.2 | 3.1 | 2.1 |
| 22 | 1.7 | 4.4 | 15 | 1.3 | 4.3 | 2.1 | 4.6 | 4.0 | 3.2 | 2.1 | 2.8 | 2.1 |
| 23 | 1.8 | 3.5 | 10 | 1.5 | 12 | 2.8 | 4.4 | 6.9 | 3.2 | 2.1 | 2.7 | 2.2 |
| 24 | 3.1 | 2.9 | 6.9 | 1.4 | 26 | 4.4 | 4.3 | 21 | 3.1 | 2.1 | 3.0 | 2.2 |
| 25 | 4.2 | 2.4 | 11 | 1.3 | 28 | 5.4 | 4.3 | 16 | 2.9 | 2.4 | 4.6 | 2.2 |
| 26 | 3.9 | 2.0 | 9.3 | 1.2 | 24 | 4.9 | 4.0 | 22 | 2.9 | 4.2 | 5.3 | 2.2 |
| 27 | 6.2 | 1.8 | 6.2 | 1.0 | 16 | 4.1 | 4.0 | 45 | 2.5 | 3.4 | 4.6 | 2.2 |
| 28 | 3.4 | 13 | 4.6 | 1.1 | 8.7 | 3.8 | 3.9 | 5.5 | 2.3 | 2.7 | 3.7 | 2.3 |
| 29 | 3.3 | 21 | 3.5 | 1.1 | --- | 3.8 | 3.8 | 5.0 | 2.2 | 2.4 | 3.3 | 2.3 |
| 30 | 3.3 | 9.0 | 3.1 | 1.0 | --- | 5.3 | 3.8 | 4.5 | 2.2 | 2.8 | 3.0 | 2.4 |
| 31 | 5.7 | --- | 3.3 | 1.5 | --- | 5.6 | --- | 4.3 | --- | 7.1 | 2.8 | --- |
| TOTAL | 89.20 | 182.1 | 135.2 | 110.3 | 176.9 | 121.3 | 144.7 | 457.6 | 95.7 | 79.7 | 105.8 | 68.3 |
| MEAN | 2.88 | 6.07 | 4.36 | 3.56 | 6.32 | 3.91 | 4.82 | 14.8 | 3.19 | 2.57 | 3.41 | 2.28 |
| MAX | 6.2 | 21 | 15 | 17 | 28 | 9.2 | 6.7 | 100 | 4.1 | 7.1 | 5.3 | 2.7 |
| MIN | .90 | 1.6 | 1.8 | 1.0 | 1.4 | 1.9 | 3.8 | 3.2 | 1.8 | 2.1 | 2.4 | 2.1 |

WTR YR 1985 TOTAL 1766.80 MEAN 4.84 MAX 100 MIN .90

## 02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

### WATER-QUALITY RECORDS

**PERIOD OF DAILY RECORD.--**
**WATER TEMPERATURE:** October 1984 to September 1985.

**INSTRUMENTATION.**--Water-temperature recorder since October 1984.

**REMARKS.**--Interruptions in the record were due to malfunctions of the instrument.

**EXTREMES FOR CURRENT YEAR.--**
**WATER TEMPERATURE:** Maximum, 22.0°C, July 16, Aug. 13-15; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 12.5 | 11.5 | 12.0 | 14.5 | 13.5 | 14.0 | --- | --- | --- | --- | --- | --- |
| 2 | 13.0 | 12.0 | 12.5 | 14.5 | 10.0 | 13.5 | --- | --- | --- | --- | --- | --- |
| 3 | 12.5 | 11.5 | 12.0 | 12.5 | 11.0 | 11.5 | --- | --- | --- | --- | --- | --- |
| 4 | 14.0 | 12.0 | 13.0 | 11.5 | 11.0 | 11.5 | 3.5 | 1.5 | 2.5 | --- | --- | --- |
| 5 | 14.0 | 13.0 | 13.5 | 11.5 | 10.5 | 11.0 | 3.0 | 1.5 | 2.0 | --- | --- | --- |
| 6 | 14.0 | 13.0 | 13.5 | 11.0 | 10.0 | 10.5 | 2.5 | 1.0 | 2.0 | 5.0 | 4.0 | 4.5 |
| 7 | 13.5 | 13.5 | 13.5 | 9.5 | 9.0 | 9.5 | 1.0 | .0 | .5 | 4.5 | 4.0 | 4.0 |
| 8 | 13.5 | 13.5 | 13.5 | 9.5 | 8.5 | 9.0 | 2.0 | .0 | 1.0 | 3.5 | 2.0 | 3.0 |
| 9 | 15.0 | 13.5 | 14.0 | 9.5 | 8.5 | 9.0 | 3.0 | 1.0 | 2.0 | 2.5 | 1.0 | 2.0 |
| 10 | 15.5 | 14.0 | 15.0 | 9.5 | 8.5 | 9.0 | 3.5 | 2.5 | 3.0 | 2.0 | 1.5 | 2.0 |
| 11 | 15.5 | 14.0 | 15.0 | 9.5 | 8.0 | 9.0 | 4.5 | 3.0 | 3.5 | 2.0 | 1.0 | 1.5 |
| 12 | 15.5 | 14.0 | 14.5 | 8.0 | 7.0 | 7.5 | 5.0 | 3.0 | 4.0 | 1.0 | .0 | .5 |
| 13 | 15.0 | 13.0 | 14.0 | 7.0 | 5.0 | 6.0 | 6.0 | 4.0 | 5.0 | 1.0 | .0 | .5 |
| 14 | 15.0 | 13.5 | 14.5 | 6.5 | 5.0 | 5.5 | 6.0 | 4.5 | 5.5 | .0 | .0 | .0 |
| 15 | 15.5 | 14.0 | 14.5 | 7.0 | 5.5 | 6.0 | 7.0 | 5.5 | 6.0 | .0 | .0 | .0 |
| 16 | 16.0 | 14.0 | 15.0 | 6.5 | 4.5 | 6.0 | 7.0 | 6.0 | 6.5 | .0 | .0 | .0 |
| 17 | 16.0 | 15.0 | 15.5 | 5.0 | 3.5 | 4.0 | 7.5 | 6.0 | 7.0 | .5 | .0 | .5 |
| 18 | 16.5 | 14.0 | 15.5 | 4.5 | 3.5 | 4.5 | 8.0 | 7.0 | 7.5 | .5 | .5 | .5 |
| 19 | 17.0 | 15.5 | 16.5 | 6.0 | 4.5 | 5.5 | 8.0 | 6.5 | 7.5 | 1.0 | .0 | .5 |
| 20 | 17.0 | 16.0 | 16.5 | 5.0 | 4.0 | 4.5 | 7.0 | 6.0 | 6.5 | .0 | .0 | .0 |
| 21 | 17.0 | 16.0 | 16.5 | 4.5 | 3.5 | 4.0 | 7.0 | 6.5 | 7.0 | .0 | .0 | .0 |
| 22 | 17.0 | 16.0 | 16.5 | 4.5 | 2.5 | 3.5 | 7.0 | 6.0 | 7.0 | .0 | .0 | .0 |
| 23 | 16.5 | 15.5 | 16.0 | 4.5 | 2.5 | 3.5 | 6.0 | 5.0 | 5.5 | .0 | .0 | .0 |
| 24 | 16.0 | 15.0 | 15.5 | 4.5 | 3.0 | 3.5 | 5.5 | 4.5 | 5.0 | .5 | .0 | .0 |
| 25 | 16.0 | 15.0 | 15.5 | 4.5 | 3.0 | 3.5 | 6.0 | 4.5 | 5.0 | .5 | .0 | .5 |
| 26 | 16.0 | 14.5 | 15.0 | 5.0 | 3.0 | 4.0 | 4.5 | 1.5 | 3.5 | .0 | .0 | .0 |
| 27 | 17.0 | 14.5 | 15.5 | 6.0 | 3.5 | 5.0 | 5.0 | 3.0 | 4.0 | .5 | .0 | .0 |
| 28 | 16.0 | 14.0 | 15.0 | 7.0 | 5.5 | 6.5 | --- | --- | --- | 1.0 | .5 | .5 |
| 29 | 15.5 | 13.5 | 14.5 | 6.0 | 5.0 | 5.5 | --- | --- | --- | 1.0 | .5 | .5 |
| 30 | 14.0 | 8.0 | 12.5 | --- | --- | --- | --- | --- | --- | 1.0 | .0 | .5 |
| 31 | 15.5 | 13.5 | 14.5 | --- | --- | --- | --- | --- | --- | 1.0 | .0 | .5 |
| MONTH | 17.0 | 8.0 | 14.5 | 14.5 | 2.5 | 7.0 | 8.0 | .0 | 4.5 | 5.0 | .0 | 1.0 |

## 02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | .5 | .0 | .0 | --- | --- | --- | 10.0 | 7.0 | 8.5 | 15.0 | 13.5 | 14.5 |
| 2 | 2.0 | .5 | 1.5 | --- | --- | --- | 8.5 | 6.0 | 7.0 | 15.0 | 13.0 | 14.0 |
| 3 | 2.5 | 1.0 | 1.5 | --- | --- | --- | 8.0 | 6.5 | 7.0 | 12.5 | 6.5 | 9.0 |
| 4 | 2.0 | 1.0 | 1.5 | --- | --- | --- | 10.0 | 6.5 | 8.0 | 9.0 | 7.0 | 8.0 |
| 5 | 2.0 | 1.0 | 1.5 | --- | --- | --- | 10.5 | 6.5 | 9.0 | 10.5 | 8.5 | 9.5 |
| 6 | 2.5 | 1.5 | 2.0 | --- | --- | --- | 9.5 | 8.0 | 9.0 | --- | --- | --- |
| 7 | 1.5 | .0 | .5 | --- | --- | --- | 8.0 | 7.0 | 7.5 | --- | --- | --- |
| 8 | .0 | .0 | .0 | --- | --- | --- | 7.0 | 5.0 | 6.5 | --- | --- | --- |
| 9 | .0 | .0 | .0 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | .0 | .0 | .0 | --- | --- | --- | --- | --- | --- | 15.0 | 13.0 | 14.0 |
| 11 | 1.5 | .0 | .5 | 5.0 | 4.0 | 4.5 | --- | --- | --- | 16.5 | 13.5 | 15.0 |
| 12 | 1.5 | .0 | 1.0 | 5.5 | 4.5 | 5.0 | --- | --- | --- | 17.0 | 13.0 | 15.0 |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12.0 | 8.0 | 10.0 |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 14.0 | 11.0 | 12.5 |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 15.0 | 13.5 | 14.0 |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 15.0 | 8.0 | 12.0 |
| 17 | --- | --- | --- | 7.0 | 4.5 | 5.5 | --- | --- | --- | 9.5 | 8.0 | 9.0 |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 10.5 | 8.5 | 9.5 |
| 19 | --- | --- | --- | --- | --- | --- | 14.0 | 11.0 | 12.5 | 12.0 | 9.0 | 10.0 |
| 20 | --- | --- | --- | --- | --- | --- | 15.0 | 12.0 | 13.5 | 14.0 | 11.0 | 12.5 |
| 21 | --- | --- | --- | 6.0 | 4.0 | 4.5 | 15.0 | 12.5 | 13.5 | 14.5 | 13.5 | 14.0 |
| 22 | --- | --- | --- | --- | --- | --- | 15.0 | 12.0 | 13.5 | 14.5 | 13.5 | 14.0 |
| 23 | --- | --- | --- | --- | --- | --- | 16.5 | 12.5 | 14.5 | 14.0 | 12.0 | 13.0 |
| 24 | --- | --- | --- | 6.0 | 4.0 | 5.0 | 16.0 | 13.5 | 14.5 | 12.0 | 10.5 | 11.0 |
| 25 | --- | --- | --- | 6.0 | 4.5 | 5.0 | 15.5 | 12.5 | 14.0 | 12.0 | 10.0 | 11.0 |
| 26 | --- | --- | --- | --- | --- | --- | 14.5 | 12.0 | 13.5 | 13.0 | 10.0 | 12.0 |
| 27 | --- | --- | --- | --- | --- | --- | 14.5 | 13.0 | 14.0 | 12.0 | 8.5 | 9.5 |
| 28 | --- | --- | --- | 10.0 | 6.5 | 8.0 | 15.0 | 13.5 | 14.0 | 12.5 | 11.5 | 12.0 |
| 29 | --- | --- | --- | 11.0 | 8.5 | 9.5 | 16.0 | 12.0 | 14.0 | 15.0 | 12.0 | 13.0 |
| 30 | --- | --- | --- | 11.5 | 9.0 | 10.0 | 15.0 | 12.0 | 13.5 | 14.0 | 12.5 | 13.0 |
| 31 | --- | --- | --- | 10.0 | 8.5 | 9.5 | --- | --- | --- | 14.0 | 12.5 | 13.0 |
| MONTH | 2.5 | .0 | 1.0 | 11.5 | 4.0 | 6.5 | 16.5 | 5.0 | 11.5 | 17.0 | 6.5 | 12.0 |
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 16.5 | 14.0 | 15.0 | 17.5 | 16.5 | 17.0 | 19.5 | 17.0 | 18.5 | 18.0 | 17.0 | 17.5 |
| 2 | 15.5 | 14.5 | 15.0 | 17.0 | 16.5 | 16.5 | 19.0 | 17.0 | 17.5 | 19.0 | 15.5 | 17.5 |
| 3 | 16.0 | 14.5 | 15.0 | 17.5 | 16.0 | 16.5 | 19.5 | 16.5 | 18.0 | 20.0 | 17.5 | 18.5 |
| 4 | 16.5 | 15.0 | 15.5 | 18.0 | 16.5 | 17.0 | 19.5 | 17.0 | 18.0 | 20.0 | 18.5 | 19.0 |
| 5 | 17.5 | 15.5 | 16.5 | 19.5 | 17.0 | 18.0 | 18.5 | 17.5 | 18.0 | 20.0 | 17.0 | 19.0 |
| 6 | 18.0 | 16.5 | 17.0 | 18.5 | 18.0 | 18.0 | 18.0 | 17.5 | 17.5 | 19.0 | 15.5 | 18.5 |
| 7 | 16.5 | 15.5 | 16.0 | 19.0 | 17.0 | 18.0 | 18.0 | 17.5 | 18.0 | 21.0 | 17.0 | 18.5 |
| 8 | 18.0 | 15.5 | 16.5 | 19.5 | 18.0 | 18.5 | 19.0 | 17.5 | 18.0 | 21.0 | 19.5 | 20.0 |
| 9 | 18.0 | 16.5 | 17.5 | 20.5 | 18.5 | 19.5 | 20.5 | 18.0 | 19.0 | --- | --- | --- |
| 10 | 19.5 | 17.0 | 18.0 | 20.0 | 18.5 | 19.0 | 20.5 | 17.0 | 19.5 | 21.5 | 18.0 | 20.5 |
| 11 | 19.0 | 17.5 | 18.5 | 20.5 | 18.0 | 19.0 | 20.0 | 18.5 | 19.5 | 21.0 | 19.0 | 20.0 |
| 12 | 19.0 | 16.5 | 17.5 | 21.0 | 19.0 | 20.0 | 20.5 | 19.0 | 19.5 | 19.0 | 16.5 | 17.5 |
| 13 | 16.0 | 13.5 | 14.5 | 21.0 | 19.5 | 20.0 | 22.0 | 19.5 | 20.5 | 17.0 | 16.0 | 16.5 |
| 14 | 14.5 | 12.5 | 13.5 | 21.5 | 19.0 | 20.0 | 22.0 | 20.0 | 21.0 | 17.5 | 15.0 | 16.0 |
| 15 | 15.0 | 13.5 | 14.5 | 21.5 | 20.0 | 21.0 | 22.0 | 20.0 | 21.0 | 17.5 | 15.0 | 16.0 |
| 16 | 15.5 | 14.5 | 15.0 | 22.0 | 20.0 | 21.0 | 21.0 | 19.5 | 20.0 | 18.0 | 15.0 | 16.5 |
| 17 | 17.0 | 14.5 | 15.5 | 21.5 | 19.5 | 20.5 | 20.0 | 19.5 | 19.5 | 18.0 | 15.5 | 16.5 |
| 18 | 16.5 | 16.0 | 16.0 | 21.5 | 19.5 | 20.5 | 19.5 | 18.5 | 18.5 | 18.5 | 15.5 | 17.0 |
| 19 | 16.0 | 15.0 | 15.5 | 21.5 | 20.0 | 21.0 | 19.5 | 17.0 | 18.5 | 18.0 | 16.0 | 17.0 |
| 20 | 15.5 | 14.5 | 15.0 | 21.5 | 20.0 | 21.0 | 19.5 | 17.5 | 18.5 | 19.0 | 16.5 | 17.5 |
| 21 | 16.5 | 14.0 | 15.0 | 21.5 | 20.5 | 21.0 | 19.5 | 17.5 | 18.5 | 19.0 | 16.5 | 17.5 |
| 22 | 17.0 | 15.0 | 16.0 | 21.0 | 20.0 | 20.5 | 18.5 | 16.5 | 17.5 | 18.0 | 17.5 | 18.0 |
| 23 | 18.5 | 16.5 | 17.0 | 21.0 | 19.5 | 20.5 | 18.0 | 16.0 | 17.0 | 18.0 | 16.5 | 17.5 |
| 24 | 19.5 | 16.5 | 18.0 | 21.0 | 19.0 | 20.0 | 16.5 | 15.5 | 16.0 | 17.5 | 16.0 | 17.0 |
| 25 | 19.5 | 18.0 | 18.5 | 20.5 | 19.5 | 20.0 | 17.5 | 13.0 | 15.5 | 17.0 | 15.0 | 16.0 |
| 26 | 18.0 | 17.0 | 17.5 | 19.5 | 19.0 | 19.5 | 17.5 | 15.5 | 16.5 | 17.0 | 16.0 | 16.5 |
| 27 | 18.0 | 16.0 | 17.0 | 21.0 | 19.0 | 19.5 | 17.5 | 16.5 | 17.0 | 17.0 | 14.5 | 15.5 |
| 28 | 17.5 | 16.5 | 17.0 | 20.5 | 18.5 | 19.5 | 18.0 | 15.5 | 16.5 | 16.5 | 14.0 | 15.0 |
| 29 | 18.0 | 16.0 | 17.0 | 21.0 | 19.0 | 20.0 | 18.0 | 16.5 | 17.5 | 16.0 | 14.5 | 15.0 |
| 30 | 18.5 | 17.0 | 17.5 | 21.5 | 19.5 | 20.5 | 18.0 | 16.0 | 17.0 | 16.5 | 14.0 | 15.0 |
| 31 | --- | --- | --- | 20.0 | 18.0 | 19.0 | 18.0 | 15.0 | 17.0 | --- | --- | --- |
| MONTH | 19.5 | 12.5 | 16.5 | 22.0 | 16.0 | 19.5 | 22.0 | 13.0 | 18.0 | 21.5 | 14.0 | 17.5 |
| YEAR | 22.0 | .0 | 12.0 | | | | | | | | | |

## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°04'10", long 79°53'50", Bath County, Hydrologic Unit 02080201, on left bank 0.3 mi downstream from Cummings Run, 0.8 mi downstream from bridge on State Highway 39, and 2.1 mi south of Mountain Grove.

DRAINAGE AREA.--134 mi².

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,701.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 21, 26-31, Mar. 30 to Apr. 2, and May 6, 7, 9-24. Records good except those for periods of doubtful or no gage-height record, Mar. 30 to Apr. 2 and May 6, 7, 9-24, and periods with ice effect, Jan. 16, 21, 26-31, which are fair. Flow regulated since October 1984 by Back Creek Lake 11.3 mi upstream and since January 1985 by Little Back Creek Lake 14.4 mi upstream, amount unknown. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--34 years, 184 ft³/s, 18.65 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s, Mar. 7, 1967, gage height, 10.77 ft, from rating curve extended above 4,000 ft³/s on basis of slope-area measurements at gage heights 7.39 ft, 9.05 ft, and 9.35 ft; minimum, 1.5 ft³/s, Aug. 18, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,190 ft³/s, May 3, gage height, 6.66 ft; minimum daily, 15 ft³/s, Sept. 12-21, 23-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 72 | 51 | 150 | 107 | 128 | 395 | 320 | 75 | 98 | 23 | 31 | 25 |
| 2 | 53 | 49 | 111 | 225 | 420 | 291 | 270 | 80 | 94 | 24 | 45 | 24 |
| 3 | 46 | 50 | 94 | 316 | 287 | 253 | 218 | 1570 | 67 | 23 | 40 | 23 |
| 4 | 38 | 45 | 80 | 513 | 185 | 206 | 196 | 688 | 62 | 21 | 39 | 18 |
| 5 | 32 | 81 | 72 | 347 | 142 | 178 | 163 | 364 | 63 | 21 | 30 | 18 |
| 6 | 28 | 93 | 74 | 226 | 123 | 152 | 165 | 280 | 62 | 21 | 25 | 18 |
| 7 | 27 | 84 | 65 | 170 | 100 | 130 | 147 | 220 | 74 | 24 | 29 | 17 |
| 8 | 28 | 68 | 59 | 134 | 79 | 122 | 142 | 150 | 91 | 21 | 34 | 17 |
| 9 | 28 | 60 | 58 | 105 | 77 | 131 | 130 | 130 | 142 | 20 | 36 | 18 |
| 10 | 26 | 53 | 59 | 89 | 70 | 126 | 124 | 120 | 117 | 24 | 29 | 16 |
| 11 | 25 | 61 | 64 | 80 | 63 | 131 | 130 | 140 | 101 | 24 | 27 | 16 |
| 12 | 24 | 59 | 72 | 70 | 158 | 523 | 132 | 200 | 72 | 27 | 27 | 15 |
| 13 | 23 | 56 | 80 | 63 | 141 | 396 | 131 | 400 | 67 | 26 | 29 | 15 |
| 14 | 22 | 50 | 74 | 59 | 101 | 167 | 132 | 250 | 66 | 25 | 27 | 15 |
| 15 | 23 | 51 | 69 | 55 | 82 | 131 | 129 | 170 | 65 | 23 | 25 | 15 |
| 16 | 24 | 48 | 66 | 45 | 71 | 194 | 143 | 130 | 56 | 22 | 24 | 15 |
| 17 | 24 | 45 | 62 | 49 | 63 | 196 | 148 | 109 | 41 | 20 | 25 | 15 |
| 18 | 25 | 44 | 59 | 48 | 59 | 177 | 148 | 102 | 36 | 20 | 54 | 15 |
| 19 | 24 | 166 | 63 | 45 | 61 | 155 | 147 | 140 | 32 | 20 | 42 | 15 |
| 20 | 23 | 237 | 79 | 36 | 72 | 132 | 147 | 76 | 62 | 19 | 33 | 15 |
| 21 | 21 | 153 | 159 | 32 | 86 | 128 | 138 | 59 | 82 | 19 | 30 | 15 |
| 22 | 22 | 111 | 305 | 37 | 114 | 144 | 119 | 52 | 87 | 18 | 27 | 16 |
| 23 | 25 | 91 | 243 | 37 | 199 | 249 | 105 | 450 | 76 | 18 | 25 | 15 |
| 24 | 37 | 77 | 178 | 35 | 457 | 346 | 98 | 1300 | 82 | 18 | 25 | 15 |
| 25 | 31 | 67 | 287 | 36 | 1020 | 324 | 97 | 790 | 61 | 23 | 29 | 15 |
| 26 | 36 | 58 | 244 | 30 | 1150 | 278 | 91 | 458 | 31 | 38 | 27 | 15 |
| 27 | 40 | 52 | 176 | 27 | 738 | 230 | 87 | 373 | 24 | 28 | 34 | 15 |
| 28 | 44 | 224 | 135 | 29 | 537 | 194 | 82 | 228 | 23 | 23 | 34 | 15 |
| 29 | 77 | 404 | 110 | 28 | --- | 210 | 79 | 174 | 23 | 22 | 23 | 15 |
| 30 | 66 | 221 | 94 | 25 | --- | 270 | 76 | 85 | 22 | 21 | 31 | 15 |
| 31 | 57 | --- | 96 | 30 | --- | 300 | --- | 90 | --- | 33 | 26 | --- |
| TOTAL | 1071 | 2909 | 3537 | 3128 | 6783 | 6859 | 4234 | 9453 | 1979 | 709 | 962 | 496 |
| MEAN | 34.5 | 97.0 | 114 | 101 | 242 | 221 | 141 | 305 | 66.0 | 22.9 | 31.0 | 16.5 |
| MAX | 77 | 404 | 305 | 513 | 1150 | 523 | 320 | 1570 | 142 | 38 | 54 | 25 |
| MIN | 21 | 44 | 58 | 25 | 59 | 122 | 76 | 52 | 22 | 18 | 23 | 15 |
| (*) | +9 | +85 | +155 | +89 | +126 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MEAN† | 43.5 | 182 | 269 | 190 | 368 | 221 | 141 | 305 | 66.0 | 22.9 | 31.0 | 16.5 |
| CFSM† | .32 | 1.36 | 2.01 | 1.42 | 2.75 | 1.65 | 1.05 | 2.28 | .49 | .17 | .23 | .12 |
| IN.† | .37 | 1.52 | 2.32 | 1.63 | 2.86 | 1.90 | 1.18 | 2.62 | .55 | .20 | .27 | .14 |

CAL YR 1984 TOTAL 78678 MEAN 215 MAX 4900 MIN 16 MEAN† 236 CFSM† 1.76 IN.† 23.98
WTR YR 1985 TOTAL 42120 MEAN 115 MAX 1570 MIN 15 MEAN† 153 CFSM† 1.14 IN.† 15.54

* Change in contents, equivalent in cubic feet per second, for the initial storage in Back Creek Lake; provided by Virginia Power.

† Adjusted for change in contents.

## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum recorded, 31.0°C, Aug. 5, 11, 1980, July 21, Aug. 21, 1983, July 30, 1985; minimum recorded, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 31.0°C, July 30; minimum, 0.0°C on many days during winter period.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 13.5 | 13.0 | 13.0 | 15.5 | 14.5 | 15.0 | 9.0 | 7.0 | 8.0 | 10.0 | 7.5 | 8.5 |
| 2 | 14.5 | 12.5 | 13.0 | 15.5 | 12.5 | 14.5 | 8.0 | 5.5 | 7.0 | 9.0 | 7.5 | 8.5 |
| 3 | 16.0 | 11.0 | 13.5 | 13.5 | 10.5 | 12.0 | 8.5 | 6.5 | 7.5 | 7.5 | 7.0 | 7.0 |
| 4 | 17.0 | 12.0 | 14.5 | 12.5 | 12.0 | 12.5 | 6.5 | 4.5 | 5.5 | 7.0 | 7.0 | 7.0 |
| 5 | 17.5 | 13.5 | 15.5 | 13.5 | 12.5 | 13.0 | 6.0 | 4.0 | 5.0 | 7.0 | 5.0 | 6.0 |
| 6 | 17.5 | 14.0 | 16.0 | 12.5 | 11.5 | 12.0 | 5.5 | 3.0 | 4.5 | 6.0 | 3.5 | 5.0 |
| 7 | 17.0 | 15.5 | 16.0 | 12.5 | 9.5 | 11.0 | 3.0 | 1.5 | 2.0 | 5.5 | 4.5 | 5.0 |
| 8 | 17.0 | 15.5 | 16.0 | 12.0 | 8.5 | 10.5 | 4.0 | 1.0 | 2.5 | 5.0 | 3.0 | 4.5 |
| 9 | 20.0 | 16.0 | 18.0 | 12.0 | 10.0 | 11.0 | 5.0 | 1.5 | 3.5 | 3.5 | 1.5 | 2.5 |
| 10 | 20.0 | 16.0 | 18.0 | 12.5 | 9.0 | 11.0 | 5.5 | 4.0 | 4.5 | 3.0 | 2.5 | 3.0 |
| 11 | 20.0 | 16.0 | 18.0 | 12.5 | 11.0 | 12.0 | 7.5 | 5.0 | 6.0 | 3.5 | 2.0 | 2.5 |
| 12 | 20.0 | 15.5 | 17.5 | 10.5 | 8.5 | 9.5 | 7.0 | 4.0 | 5.5 | 2.0 | .0 | 1.0 |
| 13 | 18.5 | 14.0 | 16.5 | 9.0 | 7.0 | 8.5 | 8.5 | 6.0 | 7.0 | 3.0 | .0 | 1.5 |
| 14 | 18.0 | 14.0 | 16.0 | 9.0 | 6.5 | 8.0 | 8.0 | 7.0 | 7.5 | 3.0 | .0 | 1.5 |
| 15 | 16.5 | 13.5 | 15.5 | 10.0 | 6.5 | 8.5 | 10.0 | 7.5 | 8.5 | 1.5 | .0 | .5 |
| 16 | 19.5 | 15.0 | 17.0 | 10.5 | 7.5 | 9.5 | 9.5 | 7.5 | 8.5 | .5 | .0 | .0 |
| 17 | 18.5 | 16.5 | 17.5 | 8.5 | 5.5 | 7.0 | 10.5 | 8.0 | 9.0 | .5 | .0 | .5 |
| 18 | 20.5 | 16.5 | 18.5 | 7.5 | 6.0 | 6.5 | 10.0 | 8.0 | 9.0 | 1.0 | .0 | .5 |
| 19 | 21.5 | 16.0 | 19.0 | 9.0 | 7.0 | 8.0 | 10.0 | 9.0 | 9.5 | 3.0 | .5 | 1.0 |
| 20 | 20.5 | 17.0 | 19.0 | 8.5 | 6.5 | 8.0 | 9.0 | 7.5 | 8.0 | .5 | .0 | .0 |
| 21 | 21.0 | 17.0 | 19.0 | 8.0 | 5.5 | 6.5 | 8.0 | 7.0 | 7.5 | .5 | .0 | .0 |
| 22 | 20.5 | 18.0 | 19.5 | 7.0 | 4.5 | 6.0 | 9.0 | 7.5 | 8.0 | .5 | .5 | .5 |
| 23 | 20.0 | 17.5 | 18.5 | 7.5 | 4.5 | 6.0 | 7.5 | 5.5 | 6.5 | .5 | .0 | .5 |
| 24 | 19.5 | 17.5 | 18.0 | 7.5 | 4.5 | 6.0 | 6.5 | 4.5 | 5.5 | .5 | .0 | .5 |
| 25 | 19.0 | 17.0 | 18.0 | 7.5 | 4.5 | 6.0 | 7.0 | 5.0 | 6.5 | .5 | .0 | .5 |
| 26 | 20.5 | 17.5 | 19.0 | 8.0 | 4.5 | 6.0 | 5.5 | 3.5 | 4.5 | .5 | .5 | .5 |
| 27 | 19.5 | 16.0 | 17.5 | 9.0 | 5.5 | 7.0 | 6.5 | 4.5 | 5.5 | .5 | .0 | .5 |
| 28 | 19.5 | 15.5 | 17.5 | 10.5 | 8.5 | 9.5 | 8.0 | 5.5 | 7.0 | 1.0 | .0 | .5 |
| 29 | 19.5 | 16.0 | 17.5 | 8.5 | 7.0 | 8.0 | 9.0 | 6.0 | 7.5 | 1.0 | .0 | .5 |
| 30 | 16.5 | 14.5 | 15.5 | 8.5 | 6.0 | 7.0 | 9.0 | 7.5 | 8.0 | 1.0 | .0 | .5 |
| 31 | 18.5 | 15.0 | 16.5 | --- | --- | --- | 8.0 | 7.5 | 7.5 | .5 | .0 | .5 |
| MONTH | 21.5 | 11.0 | 17.0 | 15.5 | 4.5 | 9.0 | 10.5 | 1.0 | 6.5 | 10.0 | .0 | 2.5 |

## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | .5 | .0 | .5 | 6.0 | 2.5 | 4.0 | 11.0 | 5.5 | 8.0 | 18.0 | 12.0 | 15.0 |
| 2 | 3.5 | .0 | 2.0 | 7.5 | 3.0 | 5.0 | 8.5 | 5.0 | 6.5 | 16.0 | 12.5 | 13.5 |
| 3 | 4.0 | 1.5 | 2.5 | 7.5 | 2.0 | 5.0 | 9.0 | 4.0 | 6.5 | 12.5 | 8.5 | 10.5 |
| 4 | 3.5 | 1.5 | 2.5 | 5.5 | 4.0 | 5.0 | 12.0 | 5.5 | 8.5 | 13.0 | 7.5 | 10.0 |
| 5 | 3.0 | 2.0 | 2.5 | 9.0 | 5.0 | 6.5 | 13.5 | 7.0 | 10.0 | 14.5 | 9.0 | 11.0 |
| 6 | 4.5 | 2.5 | 3.5 | 7.5 | 2.5 | 5.0 | 11.5 | 7.5 | 9.5 | 15.0 | 9.0 | 12.0 |
| 7 | 4.0 | 1.0 | 2.5 | 7.5 | 2.5 | 5.0 | 8.0 | 5.5 | 6.5 | 17.0 | 11.0 | 13.5 |
| 8 | 1.0 | 1.0 | 1.0 | 6.0 | 4.5 | 5.0 | 9.0 | 5.0 | 7.0 | 16.0 | 10.5 | 13.0 |
| 9 | 1.5 | .0 | 1.0 | 9.0 | 4.0 | 6.5 | 8.0 | 4.5 | 6.0 | 19.0 | 11.0 | 14.5 |
| 10 | 1.5 | 1.0 | 1.0 | 9.0 | 2.5 | 5.5 | 11.0 | 3.0 | 6.5 | 18.0 | 13.0 | 15.5 |
| 11 | 2.5 | 1.0 | 1.5 | 5.5 | 3.5 | 4.5 | 9.0 | 6.0 | 7.5 | 19.5 | 13.5 | 16.0 |
| 12 | 2.0 | 1.0 | 1.5 | 7.0 | 4.5 | 5.5 | 14.0 | 6.0 | 9.5 | 19.0 | 14.0 | 16.0 |
| 13 | 2.0 | .5 | 1.5 | 8.0 | 4.0 | 5.5 | 11.5 | 8.0 | 10.0 | 17.0 | 12.5 | 14.0 |
| 14 | 3.0 | .5 | 1.5 | 7.5 | 5.5 | 6.5 | 11.0 | 8.5 | 10.0 | 18.5 | 11.0 | 14.0 |
| 15 | 3.0 | .5 | 1.5 | 9.0 | 4.0 | 6.0 | 12.0 | 9.0 | 10.5 | 17.5 | 12.5 | 15.0 |
| 16 | 2.0 | .5 | 1.0 | 8.5 | 3.0 | 5.5 | 14.5 | 9.5 | 11.5 | 18.5 | 12.5 | 15.5 |
| 17 | 4.0 | .5 | 2.0 | 8.5 | 4.0 | 6.0 | 15.0 | 8.0 | 11.5 | 15.0 | 13.0 | 14.0 |
| 18 | 4.0 | .5 | 2.5 | 7.5 | 3.0 | 5.0 | 16.5 | 8.0 | 12.0 | 17.0 | 12.0 | 14.5 |
| 19 | 6.5 | 3.0 | 4.0 | 9.0 | 2.0 | 5.0 | 17.5 | 9.0 | 13.0 | 19.0 | 11.5 | 15.0 |
| 20 | 6.0 | 1.5 | 4.0 | 9.0 | 3.0 | 6.0 | 16.0 | 9.5 | 12.5 | 20.5 | 12.0 | 16.0 |
| 21 | 6.0 | 1.0 | 3.5 | 6.5 | 4.5 | 5.5 | 16.0 | 9.5 | 12.5 | 18.5 | 15.5 | 17.0 |
| 22 | 5.5 | 2.5 | 4.5 | 5.5 | 3.5 | 4.5 | 16.0 | 9.5 | 12.5 | 17.0 | 15.5 | 16.5 |
| 23 | 7.5 | 3.5 | 5.0 | 8.0 | 4.5 | 6.0 | 18.5 | 11.0 | 14.5 | 17.0 | 10.0 | 14.5 |
| 24 | 8.0 | 4.0 | 5.5 | 9.5 | 5.5 | 7.0 | 16.5 | 11.5 | 14.5 | 10.5 | 10.0 | 10.5 |
| 25 | 6.0 | 5.0 | 5.5 | 7.0 | 4.5 | 5.5 | 18.0 | 12.5 | 15.0 | 14.5 | 10.0 | 12.0 |
| 26 | 6.0 | 4.0 | 5.0 | 10.5 | 3.0 | 6.0 | 19.5 | 10.5 | 14.5 | 15.5 | 10.5 | 12.5 |
| 27 | 7.0 | 3.5 | 5.0 | 11.0 | 4.0 | 7.0 | 15.0 | 11.5 | 13.5 | 16.5 | 11.0 | 13.5 |
| 28 | 6.5 | 2.5 | 4.0 | 11.5 | 6.0 | 8.5 | 17.0 | 13.0 | 15.0 | 14.0 | 11.5 | 12.5 |
| 29 | --- | --- | --- | 11.5 | 7.5 | 9.5 | 19.5 | 11.5 | 15.0 | 18.0 | 11.5 | 14.5 |
| 30 | --- | --- | --- | 11.0 | 7.5 | 9.5 | 20.0 | 11.5 | 15.5 | 16.0 | 15.0 | 15.0 |
| 31 | --- | --- | --- | 8.5 | 7.5 | 7.5 | --- | --- | --- | 18.5 | 14.0 | 16.0 |
| MONTH | 8.0 | .0 | 3.0 | 11.5 | 2.0 | 6.0 | 20.0 | 3.0 | 11.0 | 20.5 | 7.5 | 14.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 22.5 | 14.5 | 17.5 | 19.0 | 16.5 | 18.0 | 24.5 | 21.0 | 22.5 | 22.5 | 17.0 | 19.5 |
| 2 | 17.5 | 14.0 | 15.5 | 20.5 | 15.5 | 18.0 | 25.0 | 18.5 | 21.0 | 24.5 | 18.0 | 21.0 |
| 3 | 21.5 | 14.0 | 17.5 | 22.0 | 16.5 | 19.0 | 25.0 | 17.0 | 20.5 | 26.0 | 19.0 | 22.0 |
| 4 | 20.0 | 16.0 | 17.5 | 24.5 | 17.0 | 20.0 | 25.0 | 17.0 | 20.5 | 26.0 | 19.5 | 22.0 |
| 5 | 20.5 | 16.5 | 18.5 | 25.5 | 18.0 | 21.0 | 22.0 | 17.5 | 20.0 | 26.0 | 19.0 | 22.5 |
| 6 | 22.0 | 17.5 | 19.5 | 22.0 | 18.5 | 20.5 | 21.5 | 18.0 | 19.5 | 24.5 | 20.5 | 22.5 |
| 7 | 18.5 | 15.0 | 16.0 | 25.5 | 18.0 | 21.0 | 21.5 | 18.5 | 20.0 | 26.5 | 20.0 | 23.0 |
| 8 | 23.0 | 14.5 | 18.0 | 26.5 | 18.0 | 22.0 | 28.0 | 20.0 | 22.5 | 27.0 | 21.0 | 24.0 |
| 9 | 19.0 | 12.0 | 15.5 | 28.5 | 20.0 | 23.5 | 28.0 | 21.5 | 24.0 | 27.5 | 22.0 | 24.0 |
| 10 | 20.0 | 12.5 | 16.5 | 23.5 | 19.0 | 20.5 | 28.0 | 21.0 | 24.0 | 27.0 | 21.0 | 23.5 |
| 11 | 20.0 | 13.0 | 16.5 | 25.5 | 17.5 | 21.0 | 26.5 | 20.5 | 23.5 | 23.5 | 21.0 | 22.0 |
| 12 | 19.0 | 16.0 | 17.5 | 26.0 | 19.0 | 22.0 | 27.5 | 21.0 | 24.0 | 20.5 | 16.5 | 19.0 |
| 13 | 15.5 | 12.5 | 14.0 | 27.0 | 20.5 | 23.0 | 29.0 | 22.0 | 25.0 | 20.5 | 13.0 | 16.0 |
| 14 | 16.5 | 11.0 | 13.5 | 26.5 | 20.0 | 23.0 | 29.5 | 22.0 | 25.0 | 19.0 | 10.0 | 14.5 |
| 15 | 17.0 | 13.5 | 15.5 | 27.5 | 21.5 | 24.0 | 29.0 | 22.5 | 25.0 | 19.5 | 10.0 | 14.5 |
| 16 | 18.5 | 14.5 | 16.0 | 28.0 | 20.5 | 24.0 | 26.0 | 21.5 | 23.5 | 20.5 | 11.0 | 15.0 |
| 17 | 24.0 | 15.0 | 18.5 | 28.5 | 19.0 | 23.5 | 23.0 | 21.0 | 22.0 | 20.5 | 11.0 | 15.5 |
| 18 | 23.5 | 17.0 | 20.0 | 28.5 | 19.5 | 23.5 | 21.5 | 19.5 | 20.0 | 21.0 | 12.0 | 16.0 |
| 19 | 21.0 | 15.5 | 18.0 | 29.0 | 20.0 | 24.0 | 24.5 | 18.0 | 21.0 | 21.5 | 13.5 | 17.0 |
| 20 | 18.0 | 15.0 | 16.5 | 28.5 | 20.5 | 24.0 | 24.0 | 19.5 | 21.5 | 22.5 | 14.5 | 18.0 |
| 21 | 18.0 | 12.5 | 15.5 | 28.5 | 22.0 | 25.0 | 26.0 | 20.0 | 22.5 | 22.5 | 15.5 | 18.5 |
| 22 | 19.5 | 12.5 | 16.0 | 27.0 | 21.5 | 24.0 | 23.0 | 17.0 | 20.0 | 20.0 | 17.0 | 18.5 |
| 23 | 19.5 | 14.5 | 17.5 | 28.0 | 20.5 | 23.5 | 24.0 | 16.0 | 19.5 | 22.0 | 16.0 | 18.0 |
| 24 | 21.5 | 14.5 | 18.0 | 28.0 | 18.5 | 23.0 | 19.5 | 18.0 | 19.0 | 20.5 | 16.0 | 18.0 |
| 25 | 22.5 | 16.0 | 19.0 | 24.0 | 21.5 | 22.5 | 21.0 | 18.0 | 19.5 | 20.0 | 12.0 | 16.0 |
| 26 | 24.5 | 14.0 | 18.5 | 26.0 | 20.5 | 22.5 | 24.0 | 19.0 | 21.0 | 19.5 | 15.5 | 17.5 |
| 27 | 23.0 | 13.5 | 18.0 | 28.0 | 21.0 | 23.5 | 24.5 | 20.0 | 21.5 | 18.0 | 14.5 | 16.0 |
| 28 | 22.0 | 15.0 | 18.5 | 27.5 | 19.5 | 23.0 | 25.0 | 18.0 | 21.0 | 18.5 | 11.0 | 14.5 |
| 29 | 24.5 | 15.0 | 19.5 | 27.5 | 21.0 | 23.5 | 25.0 | 18.0 | 21.0 | 19.0 | 11.0 | 14.5 |
| 30 | 21.5 | 16.5 | 19.0 | 31.0 | 21.5 | 25.0 | 22.0 | 18.0 | 20.0 | 19.5 | 11.5 | 15.0 |
| 31 | --- | --- | --- | 28.0 | 23.0 | 25.0 | 24.0 | 17.5 | 20.0 | --- | --- | --- |
| MONTH | 24.5 | 11.0 | 17.5 | 31.0 | 15.5 | 22.5 | 29.5 | 16.0 | 21.5 | 27.5 | 10.0 | 18.5 |
| YEAR | 31.0 | .0 | 12.5 | | | | | | | | | |

## 02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°57'04", long 79°59'21", Alleghany County, Hydrologic Unit 02080201, in control tower at Gathright Dam on Jackson River, 0.9 mi upstream from Cedar Creek, 7.6 mi southwest of Hot Springs, and 19 mi upstream from Covington.

DRAINAGE AREA.--344 mi².

PERIOD OF RECORD.--December 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Lake is formed by rolled rockfill dam with an impervious compacted earth (clay) core. Spillway with crest at elevation 1,667.5 ft is in a divide about 2.5 mi south of the dam, ungated, and 2,450 ft long with a base width of 100 ft. Except for flood flows, all discharge will be through a diversion tunnel with the invert of the entrance being in an intake tower 260 ft high. Elevation of invert is 1,430.5 ft. Portals in the tower at nine levels permit oxygenated water from the surface and cold water from the bottom of the lake to be mixed for water-quality control. Sluice gates in the tower control flood flow releases. Storage began Dec. 10, 1979. Total capacity at top of dam, elevation 1,684.5 ft, is 502,600 acre-ft of which 81,100 acre-ft is above spillway crest. Capacity at maximum conservation pool, elevation 1,582.0 ft, is 123,700 acre-ft; capacity at minimum conservation pool, elevation 1,554.0 ft, is 63,000 acre-ft. Lake is used for flood control, low-water augmentation for water-quality control, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 142,000 acre-ft, Jan. 15, 1984, elevation, 1,589.0 ft; minimum, (after first filling to minimum conservation pool), 88,700 acre-ft, Oct. 20, 21, 1983, elevation, 1,567.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 126,300 acre-ft, Jan. 5, elevation, 1,583.0 ft; minimum, 90,800 acre-ft, Sept. 30, elevation, 1,568.0 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 1,578.5 | 115,000 | - |
| Oct. 31 | 1,577.1 | 111,600 | -3,400 |
| Nov. 30 | 1,581.7 | 123,000 | +11,400 |
| Dec. 31 | 1,582.0 | 123,700 | +700 |
| CAL YR 1984 | - | - | -300 |
| Jan. 31 | 1,581.7 | 123,000 | -700 |
| Feb. 28 | 1,581.7 | 123,000 | 0 |
| Mar. 31 | 1,581.8 | 123,200 | +200 |
| Apr. 30 | 1,581.7 | 123,000 | -200 |
| May 31 | 1,581.9 | 123,500 | +500 |
| June 30 | 1,580.2 | 119,200 | -4,300 |
| July 31 | 1,576.2 | 109,500 | -9,700 |
| Aug. 31 | 1,573.0 | 102,000 | -7,500 |
| Sept. 30 | 1,568.0 | 90,800 | -11,200 |
| WTR YR 1985 | - | - | -24,200 |

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°56'54", long 79°56'58", Alleghany County, Hydrologic Unit 02080201, on right bank 0.4 mi upstream from Cedar Creek, 0.5 mi downstream from Gathright Dam and Moomaw Lake, and 7.3 mi southwest of Hot Springs.

DRAINAGE AREA.--345 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

REVISED RECORDS.--WDR VA-81-1: 1980.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1973, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 0.5 mi upstream; since October 1984 by Back Creek Lake 28.5 mi upstream; and since January 1985 by Little Back Creek Lake 31.6 mi upstream, amount unknown. U.S. Army Corps of Engineers water-quality and gage-height transmitters at station, receiver at Gathright Dam.

AVERAGE DISCHARGE.--12 years, 458 ft$^3$/s, 18.03 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft$^3$/s, Dec. 26, 1973, result of cofferdam failure during construction of Gathright Dam, gage height, 18.77 ft, from rating curve extended above 4,400 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 3.0 ft$^3$/s, July 12, 1979, result of gate closure at Gathright Dam, gage height, 7.78 ft; minimum daily, 47 ft$^3$/s, Sept. 2, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 17.20 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,200 ft$^3$/s, Feb. 25, gage height, 12.44 ft; minimum, 9.9 ft$^3$/s, May 8, gage height, 7.87 ft; minimum daily, 138 ft$^3$/s, Nov. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 257 | 179 | 630 | 442 | 358 | 1010 | 508 | 221 | 257 | 258 | 257 | 254 |
| 2 | 207 | 164 | 443 | 678 | 909 | 828 | 508 | 199 | 257 | 264 | 257 | 254 |
| 3 | 179 | 147 | 385 | 985 | 1040 | 730 | 509 | 1580 | 257 | 264 | 257 | 254 |
| 4 | 157 | 147 | 323 | 991 | 1030 | 563 | 508 | 1920 | 257 | 264 | 257 | 254 |
| 5 | 179 | 147 | 292 | 1700 | 656 | 403 | 508 | 1030 | 257 | 264 | 257 | 254 |
| 6 | 179 | 147 | 292 | 1360 | 451 | 403 | 511 | 710 | 257 | 264 | 257 | 254 |
| 7 | 179 | 147 | 292 | 802 | 498 | 403 | 513 | 451 | 257 | 263 | 257 | 254 |
| 8 | 179 | 147 | 292 | 694 | 372 | 403 | 429 | 354 | 257 | 261 | 257 | 252 |
| 9 | 179 | 147 | 292 | 474 | 273 | 403 | 367 | 428 | 257 | 261 | 257 | 250 |
| 10 | 179 | 147 | 292 | 382 | 260 | 403 | 374 | 332 | 258 | 261 | 256 | 250 |
| 11 | 179 | 147 | 292 | 382 | 260 | 403 | 373 | 268 | 256 | 261 | 255 | 250 |
| 12 | 179 | 147 | 292 | 309 | 443 | 543 | 328 | 268 | 256 | 261 | 254 | 250 |
| 13 | 179 | 147 | 292 | 260 | 725 | 1020 | 373 | 358 | 255 | 261 | 256 | 251 |
| 14 | 274 | 147 | 292 | 260 | 506 | 983 | 373 | 474 | 254 | 261 | 257 | 250 |
| 15 | 446 | 147 | 292 | 260 | 361 | 586 | 373 | 532 | 254 | 261 | 270 | 250 |
| 16 | 277 | 138 | 292 | 260 | 361 | 461 | 373 | 523 | 254 | 261 | 279 | 250 |
| 17 | 179 | 147 | 292 | 260 | 361 | 461 | 364 | 485 | 254 | 261 | 279 | 250 |
| 18 | 179 | 147 | 292 | 260 | 246 | 461 | 370 | 322 | 254 | 261 | 280 | 250 |
| 19 | 179 | 147 | 268 | 260 | 176 | 461 | 373 | 217 | 254 | 261 | 279 | 250 |
| 20 | 179 | 146 | 257 | 260 | 229 | 461 | 373 | 217 | 254 | 261 | 279 | 250 |
| 21 | 179 | 146 | 430 | 260 | 260 | 461 | 328 | 217 | 254 | 261 | 279 | 250 |
| 22 | 179 | 147 | 586 | 260 | 386 | 461 | 295 | 217 | 254 | 261 | 279 | 250 |
| 23 | 179 | 147 | 670 | 260 | 594 | 461 | 295 | 217 | 254 | 260 | 279 | 250 |
| 24 | 179 | 147 | 670 | 260 | 837 | 462 | 295 | 1140 | 254 | 259 | 279 | 250 |
| 25 | 179 | 147 | 761 | 202 | 2220 | 601 | 295 | 1620 | 254 | 260 | 279 | 250 |
| 26 | 179 | 147 | 849 | 152 | 2670 | 581 | 295 | 1130 | 254 | 261 | 277 | 250 |
| 27 | 179 | 147 | 970 | 152 | 2340 | 506 | 295 | 830 | 254 | 261 | 275 | 250 |
| 28 | 179 | 148 | 774 | 152 | 1560 | 508 | 295 | 581 | 254 | 259 | 275 | 250 |
| 29 | 179 | 149 | 553 | 152 | --- | 508 | 270 | 433 | 254 | 257 | 275 | 250 |
| 30 | 179 | 390 | 450 | 152 | --- | 508 | 253 | 309 | 254 | 257 | 275 | 222 |
| 31 | 179 | --- | 469 | 152 | --- | 508 | --- | 257 | --- | 257 | 267 | --- |
| TOTAL | 6093 | 4694 | 13576 | 13433 | 20382 | 16954 | 11324 | 17840 | 7656 | 8087 | 8296 | 7503 |
| MEAN | 197 | 156 | 438 | 433 | 728 | 547 | 377 | 575 | 255 | 261 | 268 | 250 |
| MAX | 446 | 390 | 970 | 1700 | 2670 | 1020 | 513 | 1920 | 258 | 264 | 280 | 254 |
| MIN | 157 | 138 | 257 | 152 | 176 | 403 | 253 | 199 | 254 | 257 | 254 | 222 |
| (*) | -46 | +277 | +166 | +78 | +126 | +3 | -3 | +8 | -72 | -158 | -122 | -188 |
| MEAN† | 151 | 433 | 604 | 511 | 854 | 550 | 374 | 583 | 183 | 103 | 146 | 62.1 |
| CFSM† | .44 | 1.26 | 1.75 | 1.48 | 2.48 | 1.59 | 1.08 | 1.69 | .53 | .30 | .42 | .18 |
| IN.† | .50 | 1.40 | 2.02 | 1.71 | 2.58 | 1.84 | 1.21 | 1.95 | .59 | .34 | .49 | .20 |

CAL YR 1984 TOTAL 203834 MEAN 557 MAX 5180 MIN 138 MEAN† 578 CFSM† 1.68 IN.† 22.81
WTR YR 1985 TOTAL 135838 MEAN 372 MAX 2670 MIN 138 MEAN† 377 CFSM† 1.09 IN.† 14.84

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1978 to current year.
pH: October 1978 to current year.
WATER TEMPERATURE: October 1978 to current year.
DISSOLVED OXYGEN: October 1978 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1978.

REMARKS.--Interruptions in the record were due to malfunctions of the instruments. The intake tower at Gathright Dam permits selective withdrawal of water from one or more reservoir depths. Some record in prior years fragmentary due to instrument malfunction.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE (water years 1979, 1981-85): Maximum recorded, 225 microsiemens, Apr. 13, 1981; minimum recorded, 78 microsiemens, May 14, 1979.
pH (water years 1979, 1981-85): Maximum recorded, 8.6 units, Jan. 29, 1982, Jan. 13, 1983; minimum recorded, 6.9 units, Aug. 14-17, 1984.
WATER TEMPERATURE (water years 1979, 1981-85): Maximum recorded, 28.0°C, Aug. 1, 2, 1979; minimum recorded, 0.0°C, Feb. 16-19, 1979.
DISSOLVED OXYGEN (water years 1979, 1981, 1984-85): Maximum recorded, 19.5 mg/L, Jan. 16, 1979; minimum recorded, 6.1 mg/L, June 10, 15, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 186 microsiemens, Sept. 26; minimum recorded, 99 microsiemens, Apr. 10.
pH: Maximum, 8.3 units, Apr. 18; minimum, 7.1 units, Nov. 21-23, 30, Dec. 4.
WATER TEMPERATURE: Maximum, 23.5°C, July 19-21, 30, Aug. 10-12, 14; minimum, 2.5°C, Feb. 8, 9.
DISSOLVED OXYGEN: Maximum, 14.1 mg/L, Feb. 25; minimum, 7.2 mg/L, Aug. 14.

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 133 | 130 | 131 | 140 | 138 | 139 | 139 | 134 | 137 | 141 | 139 | 140 |
| 2 | 133 | 128 | 131 | 141 | 140 | 140 | 141 | 137 | 139 | 141 | 139 | 140 |
| 3 | 139 | 130 | 135 | 141 | 139 | 140 | 142 | 139 | 140 | 142 | 139 | 140 |
| 4 | 169 | 136 | 140 | 140 | 138 | 140 | 142 | 140 | 141 | 141 | 139 | 140 |
| 5 | 138 | 135 | 137 | 141 | 138 | 139 | 147 | 142 | 144 | 140 | 137 | 139 |
| 6 | 138 | 137 | 138 | 140 | 138 | 139 | 146 | 143 | 144 | 141 | 137 | 139 |
| 7 | 139 | 135 | 137 | 140 | 137 | 139 | 145 | 143 | 144 | 140 | 139 | 140 |
| 8 | 139 | 134 | 137 | 140 | 137 | 139 | 145 | 144 | 145 | 139 | 137 | 138 |
| 9 | 139 | 133 | 137 | 140 | 138 | 139 | 145 | 144 | 145 | 140 | 138 | 139 |
| 10 | 139 | 135 | 137 | 142 | 138 | 140 | 146 | 144 | 145 | 141 | 139 | 140 |
| 11 | 139 | 134 | 138 | 140 | 138 | 139 | 146 | 145 | 145 | 141 | 139 | 140 |
| 12 | 140 | 134 | 138 | 140 | 138 | 139 | 146 | 144 | 145 | 142 | 139 | 141 |
| 13 | 140 | 133 | 137 | 139 | 138 | 139 | 144 | 143 | 144 | 164 | 140 | 148 |
| 14 | 139 | 132 | 136 | 140 | 138 | 139 | 144 | 143 | 144 | 142 | 140 | 141 |
| 15 | 136 | 130 | 134 | 140 | 135 | 139 | 145 | 143 | 144 | 142 | 140 | 141 |
| 16 | 139 | 133 | 136 | 146 | 138 | 139 | 144 | 143 | 143 | 141 | 140 | 141 |
| 17 | 140 | 132 | 138 | 141 | 137 | 139 | 144 | 142 | 143 | 142 | 140 | 141 |
| 18 | 140 | 133 | 138 | 142 | 138 | 139 | 145 | 142 | 143 | 142 | 140 | 141 |
| 19 | 140 | 133 | 138 | 143 | 138 | 141 | 145 | 142 | 143 | 141 | 140 | 141 |
| 20 | 139 | 135 | 138 | 141 | 138 | 140 | 145 | 142 | 143 | 141 | 140 | 141 |
| 21 | 139 | 132 | 138 | 141 | 136 | 139 | 144 | 140 | 142 | 141 | 140 | 140 |
| 22 | --- | --- | --- | 141 | 136 | 139 | 141 | 139 | 140 | 142 | 140 | 141 |
| 23 | --- | --- | --- | 141 | 137 | 139 | 140 | 139 | 139 | 142 | 140 | 140 |
| 24 | --- | --- | --- | 141 | 137 | 140 | 140 | 139 | 140 | 141 | 140 | 140 |
| 25 | 140 | 137 | 139 | 141 | 138 | 140 | 141 | 139 | 140 | 144 | 140 | 142 |
| 26 | 140 | 138 | 139 | 142 | 138 | 140 | 142 | 140 | 141 | 144 | 142 | 143 |
| 27 | 140 | 137 | 139 | 143 | 140 | 141 | 142 | 140 | 141 | 143 | 142 | 143 |
| 28 | 142 | 134 | 139 | 144 | 140 | 142 | 142 | 140 | 142 | 143 | 142 | 142 |
| 29 | 142 | 139 | 140 | 144 | 139 | 141 | 143 | 142 | 142 | 143 | 142 | 142 |
| 30 | 140 | 138 | 139 | 143 | 134 | 138 | 142 | 140 | 141 | 143 | 141 | 142 |
| 31 | 140 | 138 | 139 | --- | --- | --- | 140 | 138 | 139 | 144 | 141 | 142 |
| MONTH | 169 | 128 | 137 | 146 | 134 | 140 | 147 | 134 | 142 | 164 | 137 | 141 |

### 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 143 | 135 | 140 | 130 | 128 | 128 | --- | --- | --- | --- | --- | --- |
| 2 | 136 | 135 | 135 | 130 | 128 | 129 | --- | --- | --- | --- | --- | --- |
| 3 | 134 | 133 | 134 | 133 | 129 | 131 | --- | --- | --- | --- | --- | --- |
| 4 | 135 | 133 | 134 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 137 | 134 | 135 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 136 | 135 | 136 | 131 | 130 | 130 | --- | --- | --- | --- | --- | --- |
| 7 | 135 | 133 | 135 | 131 | 130 | 130 | --- | --- | --- | --- | --- | --- |
| 8 | 136 | 133 | 135 | 132 | 130 | 130 | 120 | 118 | 119 | 133 | 108 | 115 |
| 9 | 137 | 136 | 136 | 131 | 130 | 130 | 119 | 118 | 118 | 109 | 102 | 106 |
| 10 | 137 | 136 | 137 | --- | --- | --- | 122 | 99 | 116 | 110 | 103 | 107 |
| 11 | 137 | 136 | 137 | --- | --- | --- | 119 | 103 | 114 | 110 | 107 | 109 |
| 12 | 138 | 133 | 136 | --- | --- | --- | 127 | 104 | 114 | 112 | 108 | 110 |
| 13 | 134 | 133 | 133 | 132 | 127 | 130 | 117 | 115 | 116 | 112 | 109 | 110 |
| 14 | 136 | 133 | 135 | 131 | 126 | 129 | 116 | 115 | 116 | 111 | 109 | 110 |
| 15 | 136 | 135 | 135 | 132 | 129 | 131 | 116 | 105 | 112 | 111 | 106 | 108 |
| 16 | 136 | 135 | 135 | 132 | 130 | 131 | 117 | 114 | 115 | 113 | 108 | 110 |
| 17 | 137 | 132 | 134 | --- | --- | --- | --- | --- | --- | 116 | 111 | 113 |
| 18 | 136 | 131 | 134 | --- | --- | --- | --- | --- | --- | 123 | 113 | 118 |
| 19 | 136 | 135 | 136 | 132 | 129 | 131 | --- | --- | --- | 118 | 114 | 116 |
| 20 | 136 | 133 | 134 | 135 | 131 | 133 | --- | --- | --- | 121 | 114 | 117 |
| 21 | 134 | 132 | 133 | 135 | 133 | 134 | 126 | 124 | 125 | 123 | 117 | 121 |
| 22 | 134 | 130 | 132 | 135 | 133 | 134 | 128 | 125 | 126 | 124 | 122 | 123 |
| 23 | 130 | 129 | 130 | --- | --- | --- | --- | --- | --- | 130 | 124 | 125 |
| 24 | 131 | 129 | 130 | --- | --- | --- | --- | --- | --- | 134 | 105 | 119 |
| 25 | 131 | 128 | 129 | --- | --- | --- | 128 | 126 | 127 | 108 | 106 | 107 |
| 26 | 130 | 128 | 128 | --- | --- | --- | --- | --- | --- | 111 | 107 | 108 |
| 27 | 129 | 128 | 128 | 133 | 128 | 131 | --- | --- | --- | 126 | 108 | 119 |
| 28 | 129 | 127 | 128 | --- | --- | --- | --- | --- | --- | 126 | 121 | 123 |
| 29 | --- | --- | --- | --- | --- | --- | 128 | 125 | 126 | 129 | 124 | 126 |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 127 | 125 | 126 |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 129 | 125 | 128 |
| MONTH | 143 | 127 | 134 | 135 | 126 | 131 | 128 | 99 | 119 | 134 | 102 | 116 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 155 | 125 | 137 | 140 | 137 | 139 | 147 | 143 | 145 | 151 | 149 | 150 |
| 2 | 155 | 138 | 143 | 138 | 135 | 136 | 147 | 143 | 146 | 152 | 149 | 151 |
| 3 | 139 | 135 | 138 | 145 | 136 | 139 | 152 | 146 | 149 | 176 | 150 | 155 |
| 4 | 168 | 135 | 144 | 143 | 140 | 141 | 153 | 148 | 151 | 167 | 155 | 162 |
| 5 | 144 | 138 | 142 | 144 | 139 | 141 | 149 | 141 | 146 | 169 | 154 | 160 |
| 6 | 139 | 135 | 137 | 146 | 138 | 141 | 162 | 146 | 150 | 167 | 159 | 162 |
| 7 | 140 | 134 | 136 | 145 | 141 | 143 | 150 | 145 | 147 | 172 | 154 | 164 |
| 8 | 138 | 131 | 134 | 145 | 141 | 143 | 153 | 145 | 148 | 173 | 163 | 166 |
| 9 | 131 | 128 | 130 | 145 | 142 | 144 | 146 | 141 | 144 | 165 | 154 | 159 |
| 10 | 135 | 129 | 132 | 148 | 144 | 145 | 147 | 142 | 144 | 160 | 152 | 156 |
| 11 | 147 | 129 | 135 | 145 | 142 | 144 | 152 | 143 | 146 | 161 | 156 | 157 |
| 12 | 145 | 132 | 137 | 147 | 142 | 144 | 155 | 145 | 150 | 157 | 148 | 152 |
| 13 | 138 | 131 | 133 | 150 | 144 | 147 | 152 | 146 | 148 | 150 | 147 | 148 |
| 14 | 166 | 134 | 147 | 149 | 144 | 147 | 153 | 146 | 148 | 148 | 145 | 147 |
| 15 | 143 | 134 | 137 | 175 | 148 | 155 | 151 | 147 | 149 | 145 | 142 | 144 |
| 16 | 149 | 135 | 142 | 151 | 148 | 150 | 152 | 146 | 149 | 167 | 144 | 154 |
| 17 | 138 | 135 | 137 | 152 | 146 | 149 | 150 | 147 | 149 | 166 | 163 | 164 |
| 18 | 138 | 135 | 136 | 154 | 146 | 149 | 151 | 147 | 150 | 165 | 162 | 164 |
| 19 | 137 | 133 | 136 | 166 | 148 | 151 | 150 | 146 | 148 | 164 | 152 | 160 |
| 20 | 152 | 132 | 137 | 161 | 148 | 152 | 150 | 146 | 149 | 153 | 145 | 150 |
| 21 | 139 | 131 | 135 | 156 | 149 | 153 | 150 | 146 | 148 | 150 | 148 | 149 |
| 22 | 136 | 131 | 134 | 153 | 147 | 150 | 150 | 148 | 149 | 149 | 146 | 147 |
| 23 | 136 | 132 | 135 | 152 | 147 | 149 | 150 | 147 | 149 | 148 | 146 | 147 |
| 24 | 138 | 134 | 135 | 149 | 142 | 147 | 152 | 147 | 150 | 151 | 147 | 149 |
| 25 | 136 | 133 | 135 | 150 | 145 | 148 | 150 | 148 | 149 | 176 | 151 | 159 |
| 26 | 146 | 133 | 136 | 152 | 143 | 147 | 149 | 143 | 146 | 186 | 154 | 176 |
| 27 | 148 | 133 | 136 | 150 | 144 | 148 | 147 | 143 | 145 | 179 | 175 | 178 |
| 28 | 138 | 133 | 135 | 149 | 142 | 145 | 147 | 144 | 146 | 178 | 175 | 176 |
| 29 | 146 | 137 | 141 | 148 | 142 | 145 | 148 | 144 | 147 | 179 | 166 | 176 |
| 30 | 166 | 140 | 148 | 148 | 140 | 145 | 151 | 147 | 149 | 181 | 177 | 180 |
| 31 | --- | --- | --- | 148 | 141 | 144 | 150 | 148 | 149 | --- | --- | --- |
| MONTH | 168 | 125 | 137 | 175 | 135 | 146 | 162 | 141 | 148 | 186 | 142 | 159 |
| YEAR | 186 | 99 | 139 | | | | | | | | | |

### 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 7.6 | 7.5 | 7.5 | 7.7 | 7.5 | 7.5 | 7.2 | 7.2 | 7.2 | 7.4 | 7.3 | 7.3 |
| 2 | 7.7 | 7.5 | 7.6 | 7.7 | 7.5 | 7.6 | 7.3 | 7.2 | 7.2 | 7.3 | 7.2 | 7.3 |
| 3 | 7.7 | 7.5 | 7.5 | 7.6 | 7.4 | 7.5 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 |
| 4 | 7.6 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.3 | 7.1 | 7.2 | 7.3 | 7.3 | 7.3 |
| 5 | 7.6 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.5 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 |
| 6 | 7.7 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 |
| 7 | 7.7 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 |
| 8 | 7.6 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.4 | 7.3 | 7.3 |
| 9 | 7.6 | 7.5 | 7.5 | 7.4 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.6 | 7.3 | 7.5 |
| 10 | 7.6 | 7.5 | 7.5 | 7.4 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.6 | 7.5 | 7.6 |
| 11 | 7.7 | 7.5 | 7.6 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 12 | 7.7 | 7.5 | 7.6 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 13 | 7.7 | 7.6 | 7.6 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 14 | 7.7 | 7.5 | 7.6 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 15 | 7.6 | 7.5 | 7.5 | 7.3 | 7.2 | 7.2 | 7.4 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 16 | 7.7 | 7.5 | 7.6 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 17 | 7.7 | 7.6 | 7.6 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 18 | 7.7 | 7.6 | 7.6 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 19 | 7.8 | 7.6 | 7.7 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 20 | 7.8 | 7.6 | 7.7 | 7.2 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 21 | 7.9 | 7.5 | 7.7 | 7.2 | 7.1 | 7.2 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 |
| 22 | --- | --- | --- | 7.2 | 7.1 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 23 | --- | --- | --- | 7.2 | 7.1 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 24 | --- | --- | --- | 7.2 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 25 | 7.9 | 7.6 | 7.7 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 26 | 7.8 | 7.6 | 7.7 | 7.2 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 27 | 7.8 | 7.6 | 7.7 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 28 | 7.8 | 7.6 | 7.7 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 29 | 7.7 | 7.6 | 7.6 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.6 |
| 30 | 7.8 | 7.6 | 7.7 | 7.3 | 7.1 | 7.2 | 7.3 | 7.3 | 7.3 | 7.7 | 7.6 | 7.7 |
| 31 | 7.7 | 7.5 | 7.6 | --- | --- | --- | 7.3 | 7.3 | 7.3 | 7.8 | 7.7 | 7.7 |
| MONTH | 7.9 | 7.5 | 7.6 | 7.7 | 7.1 | 7.3 | 7.5 | 7.1 | 7.3 | 7.8 | 7.2 | 7.5 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 |
| 2 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 |
| 3 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.7 | 8.0 | 7.5 | 7.7 |
| 4 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.6 | 7.8 | 7.5 | 7.6 |
| 5 | 7.8 | 7.7 | 7.7 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.9 | 7.8 | 7.8 |
| 6 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.7 | 8.0 | 7.8 | 7.9 |
| 7 | 7.8 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.7 | 8.0 | 7.8 | 7.9 |
| 8 | 7.8 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.7 | 7.9 | 7.8 | 7.8 |
| 9 | 7.8 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.7 | 7.9 | 7.8 | 7.8 |
| 10 | 7.8 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.7 | 8.1 | 7.8 | 7.9 |
| 11 | 7.8 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.6 | 8.1 | 7.8 | 8.0 |
| 12 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.6 | 7.8 | 7.6 | 7.7 | 8.1 | 7.8 | 8.0 |
| 13 | 7.7 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 8.1 | 7.8 | 8.0 |
| 14 | 7.7 | 7.5 | 7.6 | 7.7 | 7.6 | 7.7 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 |
| 15 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 8.0 | 7.9 | 7.9 |
| 16 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 |
| 17 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 8.1 | 7.8 | 7.9 |
| 18 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.6 | 8.3 | 7.6 | 7.8 | 8.1 | 7.8 | 7.9 |
| 19 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.8 | 7.7 | 7.7 | 8.0 | 7.7 | 7.8 |
| 20 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.8 | 7.7 | 7.7 | 8.1 | 7.8 | 7.9 |
| 21 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.8 | 7.7 | 7.7 | 8.1 | 7.8 | 7.9 |
| 22 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.9 | 7.7 | 7.8 | 8.0 | 7.8 | 7.9 |
| 23 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.9 | 7.8 | 7.8 | 8.0 | 7.8 | 7.9 |
| 24 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 | 7.9 | 7.3 | 7.6 |
| 25 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 | 7.3 | 7.3 | 7.3 |
| 26 | 7.6 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.9 | 7.8 | 7.9 | 7.4 | 7.3 | 7.3 |
| 27 | 7.5 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 | 7.8 | 7.3 | 7.6 |
| 28 | 7.6 | 7.5 | 7.6 | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 | 7.9 | 7.7 | 7.8 |
| 29 | --- | --- | --- | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 | 7.9 | 7.7 | 7.8 |
| 30 | --- | --- | --- | 7.7 | 7.6 | 7.6 | 8.0 | 7.8 | 7.9 | 7.8 | 7.7 | 7.7 |
| 31 | --- | --- | --- | 7.7 | 7.6 | 7.6 | --- | --- | --- | 7.8 | 7.6 | 7.7 |
| MONTH | 7.8 | 7.5 | 7.6 | 7.7 | 7.5 | 7.6 | 8.3 | 7.6 | 7.7 | 8.1 | 7.3 | 7.8 |

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### PH (STANDARD UNITS), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 7.9 | 7.6 | 7.8 | 8.0 | 7.9 | 8.0 | 7.9 | 7.8 | 7.9 | 7.9 | 7.8 | 7.8 |
| 2 | 7.8 | 7.6 | 7.7 | 8.0 | 7.9 | 7.9 | 8.0 | 7.8 | 7.9 | 7.9 | 7.7 | 7.8 |
| 3 | 7.9 | 7.7 | 7.8 | 8.1 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.8 | 7.8 |
| 4 | 7.9 | 7.7 | 7.8 | 8.1 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.7 | 7.8 |
| 5 | 7.9 | 7.7 | 7.8 | 8.0 | 7.9 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.7 | 7.8 |
| 6 | 7.9 | 7.7 | 7.8 | 8.1 | 7.8 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.7 | 7.8 |
| 7 | 7.9 | 7.7 | 7.8 | 8.1 | 7.8 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.7 | 7.8 |
| 8 | 7.9 | 7.7 | 7.8 | 8.0 | 7.8 | 7.9 | 8.0 | 7.9 | 8.0 | 7.9 | 7.8 | 7.8 |
| 9 | 7.9 | 7.7 | 7.8 | 8.0 | 7.8 | 7.9 | 8.0 | 7.9 | 8.0 | 8.0 | 7.7 | 7.8 |
| 10 | 8.1 | 7.7 | 7.9 | 8.0 | 7.8 | 7.8 | 8.0 | 7.9 | 8.0 | 7.8 | 7.6 | 7.7 |
| 11 | 8.0 | 7.7 | 7.8 | 8.0 | 7.8 | 7.9 | 8.1 | 7.9 | 8.0 | 7.8 | 7.6 | 7.7 |
| 12 | 8.0 | 7.7 | 7.8 | 8.0 | 7.8 | 7.9 | 8.0 | 7.9 | 7.9 | 7.7 | 7.6 | 7.7 |
| 13 | 8.1 | 7.7 | 7.9 | 8.0 | 7.8 | 7.9 | 8.0 | 7.9 | 7.9 | 7.7 | 7.6 | 7.7 |
| 14 | 8.1 | 7.8 | 8.0 | 8.0 | 7.8 | 7.9 | 7.9 | 7.8 | 7.9 | 7.7 | 7.6 | 7.7 |
| 15 | 8.1 | 7.9 | 8.0 | 8.1 | 7.8 | 7.9 | 7.9 | 7.8 | 7.8 | 7.7 | 7.6 | 7.7 |
| 16 | 8.1 | 7.8 | 8.0 | 8.1 | 7.8 | 8.0 | 7.9 | 7.8 | 7.8 | 7.7 | 7.6 | 7.6 |
| 17 | 8.2 | 7.9 | 8.0 | 8.1 | 7.9 | 8.0 | 7.9 | 7.8 | 7.8 | 7.7 | 7.6 | 7.6 |
| 18 | 8.2 | 7.8 | 8.0 | 8.1 | 7.9 | 8.0 | 7.9 | 7.8 | 7.8 | 7.7 | 7.6 | 7.7 |
| 19 | 8.2 | 7.8 | 8.0 | 8.1 | 7.9 | 8.0 | 7.9 | 7.7 | 7.8 | 7.7 | 7.6 | 7.7 |
| 20 | 8.2 | 7.8 | 8.0 | 8.1 | 7.9 | 7.9 | 7.9 | 7.8 | 7.8 | 7.7 | 7.6 | 7.7 |
| 21 | 8.2 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 22 | 8.2 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.8 | 7.9 | 7.7 | 7.6 | 7.6 |
| 23 | 8.2 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.8 | 7.8 | 7.7 | 7.6 | 7.6 |
| 24 | 8.2 | 7.9 | 8.1 | 8.0 | 7.8 | 7.9 | 7.8 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 25 | 8.2 | 7.9 | 8.0 | 7.9 | 7.8 | 7.8 | 7.9 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 26 | 8.1 | 7.8 | 8.0 | 7.9 | 7.8 | 7.8 | 7.8 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 27 | 8.1 | 7.8 | 8.0 | 7.9 | 7.8 | 7.9 | 7.8 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 28 | 8.1 | 7.9 | 8.0 | 7.9 | 7.8 | 7.9 | 7.8 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 29 | 8.1 | 7.9 | 8.0 | 7.9 | 7.8 | 7.9 | 7.9 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 30 | 8.1 | 7.9 | 8.0 | 8.0 | 7.8 | 7.9 | 7.9 | 7.7 | 7.8 | 7.7 | 7.6 | 7.6 |
| 31 | --- | --- | --- | 7.9 | 7.8 | 7.9 | 7.9 | 7.7 | 7.8 | --- | --- | --- |
| MONTH | 8.2 | 7.6 | 7.9 | 8.1 | 7.8 | 7.9 | 8.1 | 7.7 | 7.9 | 8.0 | 7.6 | 7.7 |
| YEAR | 8.3 | 7.1 | 7.7 | | | | | | | | | |

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 18.0 | 17.5 | 18.0 | 17.5 | 17.0 | 17.5 | 10.0 | 10.0 | 10.0 | 8.5 | 8.0 | 8.5 |
| 2 | 17.5 | 17.0 | 17.5 | 17.0 | 16.5 | 16.5 | 10.0 | 9.5 | 10.0 | 8.5 | 7.5 | 8.0 |
| 3 | 17.5 | 17.0 | 17.0 | 16.5 | 16.5 | 16.5 | 10.0 | 9.5 | 10.0 | 7.5 | 7.5 | 7.5 |
| 4 | 17.5 | 16.0 | 17.0 | 16.5 | 16.0 | 16.0 | 9.5 | 9.5 | 9.5 | 7.5 | 7.5 | 7.5 |
| 5 | 17.5 | 17.0 | 17.0 | 16.0 | 15.5 | 16.0 | 9.5 | 9.0 | 9.5 | 7.5 | 7.0 | 7.5 |
| 6 | 17.5 | 17.0 | 17.0 | 15.5 | 15.0 | 15.0 | 9.0 | 9.0 | 9.0 | 7.5 | 7.5 | 7.5 |
| 7 | 17.0 | 17.0 | 17.0 | 15.0 | 14.5 | 15.0 | 9.0 | 8.5 | 8.5 | 7.5 | 7.5 | 7.5 |
| 8 | 17.0 | 17.0 | 17.0 | 15.0 | 14.5 | 14.5 | 8.5 | 8.5 | 8.5 | 7.5 | 7.0 | 7.5 |
| 9 | 17.5 | 17.0 | 17.0 | 15.0 | 14.5 | 14.5 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 |
| 10 | 17.5 | 17.0 | 17.0 | 14.5 | 14.0 | 14.0 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 |
| 11 | 17.5 | 17.0 | 17.5 | 14.0 | 13.5 | 14.0 | 8.5 | 8.5 | 8.5 | 7.0 | 7.0 | 7.0 |
| 12 | 17.5 | 17.5 | 17.5 | 13.5 | 13.0 | 13.0 | 8.5 | 8.5 | 8.5 | 7.0 | 6.5 | 7.0 |
| 13 | 17.5 | 17.0 | 17.5 | 13.0 | 13.0 | 13.0 | 8.5 | 8.5 | 8.5 | 6.5 | 6.5 | 6.5 |
| 14 | 17.5 | 17.0 | 17.5 | 13.0 | 12.5 | 13.0 | 8.5 | 8.5 | 8.5 | 6.5 | 6.5 | 6.5 |
| 15 | 17.5 | 17.0 | 17.0 | 13.0 | 12.5 | 13.0 | 8.5 | 8.5 | 8.5 | 6.5 | 6.0 | 6.0 |
| 16 | 17.5 | 17.0 | 17.5 | 13.0 | 12.5 | 12.5 | 8.5 | 8.5 | 8.5 | 6.0 | 6.0 | 6.0 |
| 17 | 17.5 | 17.0 | 17.5 | 12.5 | 12.0 | 12.5 | 9.0 | 8.5 | 8.5 | 6.0 | 6.0 | 6.0 |
| 18 | 17.5 | 17.0 | 17.5 | 12.5 | 12.0 | 12.0 | 9.0 | 8.5 | 8.5 | 6.0 | 6.0 | 6.0 |
| 19 | 18.0 | 17.5 | 17.5 | 12.0 | 12.0 | 12.0 | 9.0 | 8.5 | 8.5 | 6.0 | 5.5 | 6.0 |
| 20 | 18.0 | 17.5 | 17.5 | 12.0 | 11.5 | 11.5 | 9.0 | 8.5 | 8.5 | 5.5 | 5.0 | 5.5 |
| 21 | 18.5 | 17.5 | 18.0 | 11.5 | 11.0 | 11.0 | 8.5 | 8.5 | 8.5 | 5.0 | 4.5 | 5.0 |
| 22 | --- | --- | --- | 11.0 | 11.0 | 11.0 | 9.0 | 8.5 | 8.5 | 5.0 | 4.5 | 5.0 |
| 23 | --- | --- | --- | 11.0 | 10.5 | 11.0 | 8.5 | 8.5 | 8.5 | 4.5 | 4.5 | 4.5 |
| 24 | --- | --- | --- | 11.0 | 10.5 | 10.5 | 8.5 | 8.0 | 8.0 | 5.0 | 4.5 | 4.5 |
| 25 | 18.0 | 18.0 | 18.0 | 11.0 | 10.5 | 10.5 | 8.0 | 7.0 | 7.5 | 5.0 | 4.5 | 4.5 |
| 26 | 18.0 | 18.0 | 18.0 | 10.5 | 10.5 | 10.5 | 7.0 | 7.0 | 7.0 | 4.5 | 4.0 | 4.5 |
| 27 | 18.0 | 18.0 | 18.0 | 10.5 | 10.5 | 10.5 | 7.0 | 7.0 | 7.0 | 4.5 | 4.0 | 4.5 |
| 28 | 18.5 | 18.0 | 18.0 | 11.0 | 10.5 | 10.5 | 7.5 | 7.0 | 7.5 | 4.5 | 4.5 | 4.5 |
| 29 | 18.0 | 18.0 | 18.0 | 10.5 | 10.0 | 10.0 | 7.5 | 7.5 | 7.5 | 4.5 | 4.0 | 4.5 |
| 30 | 18.0 | 18.0 | 18.0 | 10.0 | 10.0 | 10.0 | 8.5 | 7.5 | 8.0 | 4.5 | 4.0 | 4.5 |
| 31 | 18.0 | 17.5 | 17.5 | --- | --- | --- | 8.0 | 8.0 | 8.0 | 4.5 | 4.0 | 4.5 |
| MONTH | 18.5 | 16.0 | 17.5 | 17.5 | 10.0 | 13.0 | 10.0 | 7.0 | 8.5 | 8.5 | 4.0 | 6.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 4.5 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 7.5 | 7.0 | 7.5 | 13.0 | 11.0 | 12.0 |
| 2 | 4.0 | 3.5 | 3.5 | 4.0 | 4.0 | 4.0 | 7.5 | 7.0 | 7.5 | 14.5 | 11.5 | 13.0 |
| 3 | 3.5 | 3.0 | 3.5 | 4.5 | 4.0 | 4.0 | 7.5 | 7.0 | 7.5 | 15.0 | 6.5 | 10.5 |
| 4 | 3.5 | 3.5 | 3.5 | 4.5 | 4.0 | 4.5 | 7.5 | 7.0 | 7.5 | 11.0 | 7.5 | 9.0 |
| 5 | 3.5 | 3.0 | 3.5 | 4.5 | 4.5 | 4.5 | 8.0 | 7.0 | 7.5 | 12.0 | 11.0 | 11.5 |
| 6 | 3.5 | 3.5 | 3.5 | 4.5 | 4.5 | 4.5 | 8.0 | 7.0 | 7.5 | 14.0 | 11.0 | 12.5 |
| 7 | 3.5 | 3.0 | 3.0 | 4.5 | 4.5 | 4.5 | 7.5 | 7.0 | 7.5 | 14.0 | 12.0 | 13.5 |
| 8 | 3.0 | 2.5 | 3.0 | 4.5 | 4.5 | 4.5 | 7.5 | 7.0 | 7.5 | 13.5 | 12.0 | 13.0 |
| 9 | 3.0 | 2.5 | 3.0 | 5.0 | 4.5 | 5.0 | 7.5 | 7.0 | 7.5 | 13.5 | 12.0 | 12.5 |
| 10 | 3.5 | 3.0 | 3.0 | 5.0 | 5.0 | 5.0 | 7.5 | 7.0 | 7.5 | 16.0 | 12.0 | 14.0 |
| 11 | 3.5 | 3.5 | 3.5 | 5.0 | 5.0 | 5.0 | 7.5 | 7.5 | 7.5 | 16.0 | 14.5 | 15.0 |
| 12 | 3.5 | 3.0 | 3.5 | 5.5 | 5.0 | 5.5 | 10.5 | 7.5 | 8.0 | 16.5 | 14.5 | 15.5 |
| 13 | 3.0 | 3.0 | 3.0 | 5.5 | 5.5 | 5.5 | 8.0 | 7.5 | 7.5 | 16.5 | 14.5 | 16.0 |
| 14 | 3.0 | 3.0 | 3.0 | 5.5 | 5.5 | 5.5 | 8.0 | 7.5 | 7.5 | 16.5 | 15.5 | 16.0 |
| 15 | 3.0 | 3.0 | 3.0 | 5.5 | 5.5 | 5.5 | 8.0 | 7.5 | 8.0 | 16.0 | 14.0 | 15.0 |
| 16 | 3.0 | 3.0 | 3.0 | 6.0 | 5.5 | 5.5 | 8.5 | 8.0 | 8.0 | 15.5 | 14.0 | 14.5 |
| 17 | 3.5 | 3.0 | 3.0 | 6.0 | 5.5 | 5.5 | 9.0 | 8.0 | 8.5 | 16.0 | 14.5 | 15.5 |
| 18 | 3.5 | 3.0 | 3.5 | 6.0 | 5.5 | 5.5 | 9.5 | 8.0 | 8.5 | 18.0 | 15.5 | 16.5 |
| 19 | 4.0 | 3.5 | 3.5 | 6.0 | 5.5 | 6.0 | 9.5 | 8.0 | 8.5 | 16.0 | 13.0 | 15.0 |
| 20 | 3.5 | 3.5 | 3.5 | 6.0 | 5.5 | 6.0 | 8.5 | 8.5 | 8.5 | 17.5 | 14.5 | 16.0 |
| 21 | 3.5 | 3.5 | 3.5 | 6.0 | 5.5 | 6.0 | 9.0 | 8.5 | 9.0 | 17.5 | 15.5 | 16.5 |
| 22 | 4.0 | 3.5 | 3.5 | 5.5 | 5.5 | 5.5 | 11.0 | 8.5 | 10.0 | 17.5 | 16.5 | 17.0 |
| 23 | 3.5 | 3.5 | 3.5 | 6.0 | 5.5 | 6.0 | 11.0 | 10.0 | 10.5 | 17.5 | 16.5 | 17.0 |
| 24 | 3.5 | 3.5 | 3.5 | 6.5 | 6.0 | 6.0 | 11.0 | 10.0 | 10.5 | 17.5 | 6.5 | 12.5 |
| 25 | 4.0 | 3.5 | 3.5 | 6.0 | 6.0 | 6.0 | 12.5 | 10.5 | 11.5 | 7.0 | 7.0 | 7.0 |
| 26 | 4.0 | 3.5 | 3.5 | 6.5 | 6.0 | 6.0 | 12.0 | 10.0 | 11.0 | 7.0 | 7.0 | 7.0 |
| 27 | 4.0 | 4.0 | 4.0 | 7.0 | 6.0 | 6.5 | 12.0 | 10.5 | 11.0 | 15.0 | 7.0 | 12.0 |
| 28 | 4.0 | 4.0 | 4.0 | 7.0 | 6.5 | 6.5 | 13.5 | 10.5 | 12.0 | 16.5 | 14.0 | 15.0 |
| 29 | --- | --- | --- | 7.0 | 6.5 | 6.5 | 12.5 | 11.5 | 12.0 | 16.5 | 15.0 | 16.0 |
| 30 | --- | --- | --- | 7.0 | 6.5 | 6.5 | 12.5 | 10.5 | 12.0 | 16.0 | 15.5 | 15.5 |
| 31 | --- | --- | --- | 7.0 | 6.5 | 7.0 | --- | --- | --- | 16.5 | 15.0 | 16.0 |
| MONTH | 4.5 | 2.5 | 3.5 | 7.0 | 4.0 | 5.5 | 13.5 | 7.0 | 9.0 | 18.0 | 6.5 | 14.0 |

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 18.0 | 15.0 | 17.0 | 20.5 | 20.0 | 20.0 | 23.0 | 22.5 | 22.5 | 21.0 | 20.0 | 20.5 |
| 2 | 17.0 | 16.0 | 16.5 | 20.0 | 19.5 | 20.0 | 23.0 | 22.5 | 23.0 | 21.0 | 20.0 | 20.5 |
| 3 | 17.5 | 16.0 | 16.5 | 20.0 | 19.5 | 19.5 | 23.0 | 22.5 | 22.5 | 21.0 | 20.5 | 21.0 |
| 4 | 17.5 | 16.0 | 16.5 | 20.5 | 19.5 | 20.0 | 23.0 | 22.5 | 22.5 | 21.5 | 20.5 | 21.0 |
| 5 | 18.0 | 16.0 | 17.0 | 20.5 | 19.5 | 20.0 | 23.0 | 22.0 | 22.5 | 21.5 | 20.5 | 21.0 |
| 6 | 17.5 | 16.0 | 17.0 | 20.5 | 19.5 | 20.0 | 22.0 | 21.5 | 22.0 | 22.0 | 21.0 | 21.5 |
| 7 | 17.0 | 16.5 | 17.0 | 21.5 | 20.0 | 20.5 | 22.0 | 21.5 | 22.0 | 21.5 | 21.0 | 21.5 |
| 8 | 18.0 | 16.5 | 17.0 | 21.5 | 19.5 | 20.5 | 22.5 | 21.5 | 22.0 | 22.0 | 21.5 | 21.5 |
| 9 | 18.0 | 16.5 | 17.0 | 22.0 | 20.0 | 21.0 | 23.0 | 22.0 | 22.5 | 22.0 | 21.5 | 22.0 |
| 10 | 19.5 | 16.5 | 17.5 | 21.5 | 20.5 | 21.0 | 23.5 | 22.5 | 23.0 | 22.5 | 21.5 | 22.0 |
| 11 | 18.5 | 16.5 | 17.5 | 21.5 | 20.5 | 21.0 | 23.5 | 23.0 | 23.0 | 22.0 | 21.5 | 22.0 |
| 12 | 18.5 | 17.0 | 18.0 | 21.5 | 21.0 | 21.5 | 23.5 | 23.0 | 23.0 | 22.0 | 20.5 | 21.5 |
| 13 | 19.5 | 17.0 | 18.0 | 22.0 | 21.0 | 21.5 | 23.0 | 22.5 | 23.0 | 21.0 | 20.5 | 20.5 |
| 14 | 19.0 | 17.5 | 18.5 | 22.0 | 21.5 | 21.5 | 23.5 | 22.5 | 23.0 | 20.5 | 19.5 | 20.0 |
| 15 | 19.0 | 17.5 | 18.5 | 22.5 | 21.5 | 22.0 | 23.0 | 22.0 | 22.5 | 20.0 | 19.5 | 19.5 |
| 16 | 19.0 | 18.0 | 18.5 | 22.5 | 22.0 | 22.0 | 23.0 | 22.0 | 22.5 | 20.0 | 19.0 | 19.5 |
| 17 | 19.5 | 18.0 | 18.5 | 23.0 | 22.0 | 22.5 | 22.5 | 22.0 | 22.5 | 19.5 | 19.0 | 19.0 |
| 18 | 20.0 | 18.0 | 19.0 | 23.0 | 22.0 | 22.5 | 22.5 | 22.0 | 22.5 | 19.5 | 19.0 | 19.0 |
| 19 | 20.0 | 18.0 | 19.0 | 23.5 | 22.0 | 23.0 | 22.5 | 21.5 | 22.0 | 19.5 | 18.5 | 19.0 |
| 20 | 19.5 | 18.0 | 19.0 | 23.5 | 22.5 | 23.0 | 22.0 | 21.5 | 22.0 | 19.5 | 18.5 | 19.0 |
| 21 | 19.5 | 18.5 | 19.0 | 23.5 | 22.5 | 23.0 | 22.5 | 21.5 | 22.0 | 19.5 | 19.0 | 19.0 |
| 22 | 19.5 | 18.0 | 19.0 | 23.0 | 22.0 | 22.5 | 22.0 | 21.5 | 22.0 | 19.0 | 19.0 | 19.0 |
| 23 | 20.0 | 18.5 | 19.5 | 23.0 | 22.5 | 23.0 | 22.0 | 21.0 | 21.5 | 19.0 | 19.0 | 19.0 |
| 24 | 20.5 | 19.5 | 20.0 | 23.0 | 22.0 | 22.5 | 21.5 | 21.0 | 21.0 | 19.5 | 19.0 | 19.0 |
| 25 | 21.0 | 19.5 | 20.0 | 23.0 | 22.0 | 22.5 | 21.5 | 21.0 | 21.0 | 19.0 | 18.5 | 19.0 |
| 26 | 21.5 | 19.5 | 20.5 | 22.5 | 21.5 | 22.0 | 21.0 | 20.0 | 20.5 | 19.0 | 18.5 | 18.5 |
| 27 | 21.0 | 19.5 | 20.5 | 23.0 | 22.0 | 22.5 | 21.0 | 20.0 | 20.5 | 18.5 | 18.0 | 18.5 |
| 28 | 21.0 | 19.5 | 20.0 | 22.5 | 22.0 | 22.5 | 21.0 | 20.5 | 20.5 | 18.0 | 17.5 | 18.0 |
| 29 | 21.0 | 20.0 | 20.5 | 23.0 | 22.0 | 22.5 | 21.0 | 20.5 | 20.5 | 18.0 | 17.5 | 17.5 |
| 30 | 21.0 | 20.0 | 20.5 | 23.5 | 22.0 | 22.5 | 21.0 | 20.5 | 21.0 | 18.0 | 17.5 | 17.5 |
| 31 | --- | --- | --- | 23.0 | 22.5 | 23.0 | 21.0 | 20.0 | 20.5 | --- | --- | --- |
| MONTH | 21.5 | 15.0 | 18.5 | 23.5 | 19.5 | 21.5 | 23.5 | 20.0 | 22.0 | 22.5 | 17.5 | 20.0 |
| YEAR | 23.5 | 2.5 | 13.0 | | | | | | | | | |

### 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 9.7 | 9.4 | 9.5 | 8.7 | 8.3 | 8.4 | 11.1 | 11.0 | 11.0 | 11.5 | 11.2 | 11.3 |
| 2 | 9.9 | 9.5 | 9.7 | 8.7 | 8.3 | 8.5 | 11.1 | 11.0 | 11.0 | 11.8 | 11.3 | 11.6 |
| 3 | 10.2 | 9.5 | 9.7 | 8.6 | 8.3 | 8.4 | 11.1 | 11.0 | 11.0 | 11.8 | 11.7 | 11.8 |
| 4 | 10.3 | 9.6 | 9.8 | 8.7 | 8.3 | 8.4 | 11.2 | 10.8 | 11.0 | 11.7 | 11.5 | 11.6 |
| 5 | 10.3 | 9.7 | 9.9 | 8.6 | 8.3 | 8.4 | 11.1 | 10.8 | 10.9 | 12.3 | 11.5 | 11.9 |
| 6 | 10.4 | 9.7 | 9.9 | 8.8 | 8.5 | 8.6 | 10.8 | 10.7 | 10.8 | 12.3 | 11.4 | 11.8 |
| 7 | 10.3 | 9.7 | 9.9 | 8.9 | 8.6 | 8.7 | 10.9 | 10.8 | 10.9 | 11.5 | 11.4 | 11.4 |
| 8 | 10.2 | 9.6 | 9.8 | 8.9 | 8.6 | 8.7 | 10.9 | 10.8 | 10.8 | 11.6 | 11.4 | 11.4 |
| 9 | 10.3 | 9.5 | 9.8 | 9.0 | 8.6 | 8.7 | 11.0 | 10.9 | 10.9 | 11.7 | 11.4 | 11.6 |
| 10 | 10.2 | 9.5 | 9.7 | 8.9 | 8.5 | 8.6 | 10.9 | 10.8 | 10.8 | 11.7 | 11.6 | 11.7 |
| 11 | 9.9 | 9.2 | 9.5 | 9.0 | 8.6 | 8.7 | 10.9 | 10.8 | 10.9 | 11.6 | 11.5 | 11.6 |
| 12 | 9.8 | 9.1 | 9.3 | 9.0 | 8.7 | 8.8 | 10.9 | 10.8 | 10.8 | 11.7 | 11.5 | 11.6 |
| 13 | 9.6 | 8.9 | 9.2 | 9.0 | 8.8 | 8.9 | 11.0 | 10.8 | 10.9 | 11.6 | 11.4 | 11.4 |
| 14 | 9.4 | 8.9 | 9.1 | 9.0 | 8.8 | 8.9 | 11.1 | 10.9 | 11.0 | 11.4 | 11.3 | 11.3 |
| 15 | 9.4 | 9.2 | 9.3 | 9.0 | 8.6 | 8.8 | 11.1 | 11.0 | 11.0 | 11.5 | 11.3 | 11.4 |
| 16 | 9.2 | 8.7 | 9.0 | 9.1 | 8.7 | 8.9 | 11.1 | 10.9 | 11.0 | 11.7 | 11.5 | 11.6 |
| 17 | 9.2 | 8.7 | 8.8 | 9.3 | 9.0 | 9.1 | 11.0 | 10.9 | 11.0 | 11.4 | 11.3 | 11.3 |
| 18 | 9.1 | 8.5 | 8.8 | 9.3 | 9.0 | 9.1 | 11.1 | 10.9 | 11.0 | 11.5 | 11.3 | 11.3 |
| 19 | 8.9 | 8.4 | 8.6 | 9.4 | 9.1 | 9.2 | 10.9 | 10.7 | 10.9 | 11.5 | 11.3 | 11.4 |
| 20 | 8.9 | 8.4 | 8.6 | 9.6 | 9.3 | 9.4 | 11.0 | 10.8 | 10.9 | 11.5 | 11.3 | 11.5 |
| 21 | 8.8 | 8.3 | 8.5 | 9.7 | 9.5 | 9.6 | 11.3 | 11.0 | 11.1 | 11.6 | 11.5 | 11.5 |
| 22 | --- | --- | --- | 9.8 | 9.6 | 9.7 | 11.4 | 11.2 | 11.3 | 11.7 | 11.5 | 11.6 |
| 23 | --- | --- | --- | 9.9 | 9.7 | 9.8 | 11.5 | 11.4 | 11.4 | 11.7 | 11.5 | 11.6 |
| 24 | --- | --- | --- | 10.0 | 9.8 | 9.8 | 11.5 | 11.3 | 11.4 | 11.7 | 11.5 | 11.6 |
| 25 | 8.8 | 8.3 | 8.5 | 10.1 | 9.9 | 10.0 | 11.9 | 11.4 | 11.7 | 11.6 | 11.3 | 11.5 |
| 26 | 8.7 | 8.3 | 8.5 | 10.2 | 10.0 | 10.1 | 11.9 | 11.8 | 11.8 | 11.7 | 11.4 | 11.5 |
| 27 | 8.6 | 8.2 | 8.4 | 10.4 | 10.1 | 10.2 | 12.0 | 11.8 | 11.9 | 11.7 | 11.5 | 11.6 |
| 28 | 8.6 | 8.2 | 8.4 | 10.2 | 10.1 | 10.2 | 11.9 | 11.6 | 11.7 | 11.7 | 11.4 | 11.5 |
| 29 | 8.6 | 8.2 | 8.4 | 10.4 | 10.3 | 10.3 | 11.6 | 11.5 | 11.6 | 11.8 | 11.5 | 11.6 |
| 30 | 8.7 | 8.3 | 8.4 | 10.9 | 10.4 | 10.7 | 11.6 | 11.4 | 11.5 | 11.8 | 11.4 | 11.5 |
| 31 | 8.6 | 8.3 | 8.4 | --- | --- | --- | 11.6 | 11.4 | 11.5 | 11.7 | 11.3 | 11.5 |
| MONTH | 10.4 | 8.2 | 9.1 | 10.9 | 8.3 | 9.2 | 12.0 | 10.7 | 11.1 | 12.3 | 11.2 | 11.5 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 12.1 | 11.3 | 11.7 | 13.0 | 12.7 | 12.9 | 12.0 | 11.8 | 11.9 | 10.8 | 10.4 | 10.6 |
| 2 | 12.3 | 12.0 | 12.1 | 12.8 | 12.7 | 12.7 | 12.1 | 11.8 | 11.9 | 10.4 | 9.4 | 9.9 |
| 3 | 12.5 | 12.3 | 12.4 | 12.8 | 12.7 | 12.7 | 12.1 | 11.9 | 12.0 | 12.6 | 9.2 | 10.1 |
| 4 | 12.4 | 12.4 | 12.4 | 12.7 | 12.3 | 12.5 | 12.3 | 12.0 | 12.2 | 10.6 | 8.8 | 9.7 |
| 5 | 12.4 | 11.7 | 12.0 | 12.4 | 12.3 | 12.4 | 12.3 | 12.0 | 12.1 | 9.4 | 8.5 | 8.9 |
| 6 | 11.9 | 11.6 | 11.8 | 12.6 | 12.4 | 12.5 | 12.3 | 11.9 | 12.1 | 9.2 | 7.9 | 8.5 |
| 7 | 12.0 | 11.9 | 11.9 | 12.6 | 12.4 | 12.5 | 12.1 | 11.9 | 12.0 | 9.4 | 7.8 | 8.7 |
| 8 | 12.0 | 11.7 | 11.9 | 12.4 | 12.3 | 12.4 | 13.1 | 11.8 | 12.6 | 9.7 | 9.2 | 9.5 |
| 9 | 11.8 | 11.7 | 11.8 | 12.5 | 12.3 | 12.4 | 13.6 | 13.1 | 13.4 | 9.7 | 9.5 | 9.6 |
| 10 | 11.8 | 11.7 | 11.7 | 12.5 | 12.3 | 12.4 | 13.9 | 13.4 | 13.6 | 9.7 | 8.8 | 9.2 |
| 11 | 11.8 | 11.5 | 11.6 | 12.4 | 12.1 | 12.2 | 14.0 | 13.6 | 13.8 | 9.1 | 8.9 | 9.0 |
| 12 | 11.8 | 11.3 | 11.5 | 12.4 | 12.0 | 12.2 | 14.0 | 13.5 | 13.8 | 9.1 | 8.8 | 8.9 |
| 13 | 12.0 | 11.8 | 11.9 | 13.1 | 12.3 | 12.7 | 13.9 | 13.7 | 13.8 | 9.1 | 8.8 | 9.0 |
| 14 | 12.6 | 11.9 | 12.3 | 13.1 | 12.6 | 12.8 | 13.8 | 13.5 | 13.6 | 9.1 | 8.9 | 9.0 |
| 15 | 12.6 | 12.4 | 12.5 | 12.8 | 12.4 | 12.6 | 13.7 | 13.3 | 13.5 | 9.5 | 9.0 | 9.3 |
| 16 | 12.6 | 12.4 | 12.5 | 12.6 | 12.3 | 12.4 | 13.2 | 12.9 | 13.1 | 9.5 | 9.2 | 9.3 |
| 17 | 12.7 | 12.5 | 12.6 | 12.4 | 12.2 | 12.3 | 13.2 | 12.9 | 13.1 | 9.3 | 8.9 | 9.1 |
| 18 | 12.8 | 12.3 | 12.5 | 12.4 | 12.2 | 12.3 | 13.1 | 11.9 | 12.6 | 9.2 | 8.6 | 8.9 |
| 19 | 12.6 | 12.2 | 12.4 | 12.5 | 12.3 | 12.4 | 13.0 | 12.7 | 12.8 | 9.5 | 8.9 | 9.3 |
| 20 | 12.6 | 12.3 | 12.5 | 12.5 | 12.2 | 12.3 | 13.0 | 12.7 | 12.9 | 9.3 | 8.9 | 9.1 |
| 21 | 12.7 | 12.5 | 12.6 | 12.5 | 12.3 | 12.4 | 12.9 | 12.7 | 12.8 | 9.1 | 8.9 | 9.0 |
| 22 | 12.9 | 12.5 | 12.7 | 12.4 | 12.2 | 12.3 | 12.7 | 11.9 | 12.3 | 9.0 | 8.8 | 8.9 |
| 23 | 12.9 | 12.7 | 12.8 | 12.3 | 12.1 | 12.2 | 12.2 | 11.8 | 12.0 | 9.1 | 8.8 | 8.9 |
| 24 | 13.0 | 12.7 | 12.9 | 12.5 | 12.1 | 12.2 | 12.1 | 11.7 | 11.9 | 11.9 | 8.8 | 10.9 |
| 25 | 14.1 | 13.0 | 13.7 | 12.6 | 12.1 | 12.4 | 11.8 | 11.1 | 11.5 | 11.9 | 11.5 | 11.6 |
| 26 | 14.0 | 13.6 | 13.8 | 12.6 | 12.3 | 12.4 | 11.8 | 11.2 | 11.5 | 11.5 | 11.5 | 11.5 |
| 27 | 13.7 | 13.6 | 13.7 | 12.4 | 12.1 | 12.3 | 11.7 | 11.1 | 11.4 | 11.5 | 9.8 | 10.4 |
| 28 | 13.7 | 12.9 | 13.2 | 12.3 | 12.1 | 12.2 | 11.4 | 10.5 | 11.1 | 9.9 | 9.4 | 9.7 |
| 29 | --- | --- | --- | 12.4 | 12.1 | 12.2 | 11.3 | 10.6 | 10.9 | 9.7 | 9.4 | 9.5 |
| 30 | --- | --- | --- | 12.4 | 12.1 | 12.2 | 11.1 | 10.4 | 10.8 | 9.6 | 9.3 | 9.4 |
| 31 | --- | --- | --- | 12.2 | 11.9 | 12.1 | --- | --- | --- | 9.3 | 9.1 | 9.3 |
| MONTH | 14.1 | 11.3 | 12.4 | 13.1 | 11.9 | 12.4 | 14.0 | 10.4 | 12.4 | 12.6 | 7.8 | 9.5 |

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 9.7 | 9.4 | 9.5 | 8.7 | 8.3 | 8.4 | 11.1 | 11.0 | 11.0 | 11.5 | 11.2 | 11.3 |
| 2 | 9.9 | 9.5 | 9.7 | 8.7 | 8.3 | 8.5 | 11.1 | 11.0 | 11.0 | 11.8 | 11.3 | 11.6 |
| 3 | 10.2 | 9.5 | 9.7 | 8.6 | 8.3 | 8.4 | 11.1 | 11.0 | 11.0 | 11.8 | 11.7 | 11.8 |
| 4 | 10.3 | 9.6 | 9.8 | 8.7 | 8.3 | 8.4 | 11.2 | 10.8 | 11.0 | 11.7 | 11.5 | 11.6 |
| 5 | 10.3 | 9.7 | 9.9 | 8.6 | 8.3 | 8.4 | 11.1 | 10.8 | 10.9 | 12.3 | 11.5 | 11.9 |
| 6 | 10.4 | 9.7 | 9.9 | 8.8 | 8.5 | 8.6 | 10.8 | 10.7 | 10.8 | 12.3 | 11.4 | 11.8 |
| 7 | 10.3 | 9.7 | 9.9 | 8.9 | 8.6 | 8.7 | 10.9 | 10.8 | 10.9 | 11.5 | 11.4 | 11.4 |
| 8 | 10.2 | 9.6 | 9.8 | 8.9 | 8.6 | 8.7 | 10.9 | 10.8 | 10.8 | 11.6 | 11.4 | 11.4 |
| 9 | 10.3 | 9.5 | 9.8 | 9.0 | 8.6 | 8.7 | 11.0 | 10.9 | 10.9 | 11.7 | 11.4 | 11.6 |
| 10 | 10.2 | 9.5 | 9.7 | 8.9 | 8.5 | 8.6 | 10.9 | 10.8 | 10.8 | 11.7 | 11.6 | 11.7 |
| 11 | 9.9 | 9.2 | 9.5 | 9.0 | 8.6 | 8.7 | 10.9 | 10.8 | 10.9 | 11.6 | 11.5 | 11.6 |
| 12 | 9.8 | 9.1 | 9.3 | 9.0 | 8.7 | 8.8 | 10.9 | 10.8 | 10.8 | 11.7 | 11.5 | 11.6 |
| 13 | 9.6 | 8.9 | 9.2 | 9.0 | 8.8 | 8.9 | 11.0 | 10.8 | 10.9 | 11.6 | 11.4 | 11.4 |
| 14 | 9.4 | 8.9 | 9.1 | 9.0 | 8.8 | 8.9 | 11.1 | 10.9 | 11.0 | 11.4 | 11.3 | 11.3 |
| 15 | 9.4 | 9.2 | 9.3 | 9.0 | 8.6 | 8.8 | 11.1 | 11.0 | 11.0 | 11.5 | 11.3 | 11.4 |
| 16 | 9.2 | 8.7 | 9.0 | 9.1 | 8.7 | 8.9 | 11.1 | 10.9 | 11.0 | 11.7 | 11.5 | 11.6 |
| 17 | 9.2 | 8.7 | 8.8 | 9.3 | 9.0 | 9.1 | 11.0 | 10.9 | 11.0 | 11.4 | 11.3 | 11.3 |
| 18 | 9.1 | 8.5 | 8.8 | 9.3 | 9.0 | 9.1 | 11.1 | 10.9 | 11.0 | 11.5 | 11.3 | 11.3 |
| 19 | 8.9 | 8.4 | 8.6 | 9.4 | 9.1 | 9.2 | 10.9 | 10.7 | 10.9 | 11.5 | 11.3 | 11.4 |
| 20 | 8.9 | 8.4 | 8.6 | 9.6 | 9.3 | 9.4 | 11.0 | 10.8 | 10.9 | 11.5 | 11.3 | 11.5 |
| 21 | 8.8 | 8.3 | 8.5 | 9.7 | 9.5 | 9.6 | 11.3 | 11.0 | 11.1 | 11.6 | 11.5 | 11.5 |
| 22 | --- | --- | --- | 9.8 | 9.6 | 9.7 | 11.4 | 11.2 | 11.3 | 11.7 | 11.5 | 11.6 |
| 23 | --- | --- | --- | 9.9 | 9.7 | 9.8 | 11.5 | 11.4 | 11.4 | 11.7 | 11.5 | 11.6 |
| 24 | --- | --- | --- | 10.0 | 9.8 | 9.8 | 11.5 | 11.3 | 11.4 | 11.7 | 11.5 | 11.6 |
| 25 | 8.8 | 8.3 | 8.5 | 10.1 | 9.9 | 10.0 | 11.9 | 11.4 | 11.7 | 11.6 | 11.3 | 11.5 |
| 26 | 8.7 | 8.3 | 8.5 | 10.2 | 10.0 | 10.1 | 11.9 | 11.8 | 11.8 | 11.7 | 11.4 | 11.5 |
| 27 | 8.6 | 8.2 | 8.4 | 10.4 | 10.1 | 10.2 | 12.0 | 11.8 | 11.9 | 11.7 | 11.5 | 11.6 |
| 28 | 8.6 | 8.2 | 8.4 | 10.2 | 10.1 | 10.2 | 11.9 | 11.6 | 11.7 | 11.7 | 11.4 | 11.5 |
| 29 | 8.6 | 8.2 | 8.4 | 10.4 | 10.3 | 10.3 | 11.6 | 11.5 | 11.6 | 11.8 | 11.5 | 11.6 |
| 30 | 8.7 | 8.3 | 8.4 | 10.9 | 10.4 | 10.7 | 11.6 | 11.4 | 11.5 | 11.8 | 11.4 | 11.5 |
| 31 | 8.6 | 8.3 | 8.4 | --- | --- | --- | 11.6 | 11.4 | 11.5 | 11.7 | 11.3 | 11.5 |
| MONTH | 10.4 | 8.2 | 9.1 | 10.9 | 8.3 | 9.2 | 12.0 | 10.7 | 11.1 | 12.3 | 11.2 | 11.5 |
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 12.1 | 11.3 | 11.7 | 13.0 | 12.7 | 12.9 | 12.0 | 11.8 | 11.9 | 10.8 | 10.4 | 10.6 |
| 2 | 12.3 | 12.0 | 12.1 | 12.8 | 12.7 | 12.7 | 12.1 | 11.8 | 11.9 | 10.4 | 9.4 | 9.9 |
| 3 | 12.5 | 12.3 | 12.4 | 12.8 | 12.7 | 12.7 | 12.1 | 11.9 | 12.0 | 12.6 | 9.2 | 10.1 |
| 4 | 12.4 | 12.4 | 12.4 | 12.7 | 12.3 | 12.5 | 12.3 | 12.0 | 12.2 | 10.6 | 8.8 | 9.7 |
| 5 | 12.4 | 11.7 | 12.0 | 12.4 | 12.3 | 12.4 | 12.3 | 12.0 | 12.1 | 9.4 | 8.5 | 8.9 |
| 6 | 11.9 | 11.6 | 11.8 | 12.6 | 12.4 | 12.5 | 12.3 | 11.9 | 12.1 | 9.2 | 7.9 | 8.5 |
| 7 | 12.0 | 11.9 | 11.9 | 12.6 | 12.4 | 12.5 | 12.1 | 11.9 | 12.0 | 9.4 | 7.8 | 8.7 |
| 8 | 12.0 | 11.7 | 11.9 | 12.4 | 12.3 | 12.4 | 13.1 | 11.8 | 12.6 | 9.7 | 9.2 | 9.5 |
| 9 | 11.8 | 11.7 | 11.8 | 12.5 | 12.3 | 12.4 | 13.6 | 13.1 | 13.4 | 9.7 | 9.5 | 9.6 |
| 10 | 11.8 | 11.7 | 11.7 | 12.5 | 12.3 | 12.4 | 13.9 | 13.4 | 13.6 | 9.7 | 8.8 | 9.2 |
| 11 | 11.8 | 11.5 | 11.6 | 12.4 | 12.1 | 12.2 | 14.0 | 13.6 | 13.8 | 9.1 | 8.9 | 9.0 |
| 12 | 11.8 | 11.3 | 11.5 | 12.4 | 12.0 | 12.2 | 14.0 | 13.5 | 13.8 | 9.1 | 8.8 | 8.9 |
| 13 | 12.0 | 11.8 | 11.9 | 13.1 | 12.3 | 12.7 | 13.9 | 13.7 | 13.8 | 9.1 | 8.8 | 9.0 |
| 14 | 12.6 | 11.9 | 12.3 | 13.1 | 12.6 | 12.8 | 13.8 | 13.5 | 13.6 | 9.1 | 8.9 | 9.0 |
| 15 | 12.6 | 12.4 | 12.5 | 12.8 | 12.4 | 12.6 | 13.7 | 13.3 | 13.5 | 9.5 | 9.0 | 9.3 |
| 16 | 12.6 | 12.4 | 12.5 | 12.6 | 12.3 | 12.4 | 13.2 | 12.9 | 13.1 | 9.5 | 9.2 | 9.3 |
| 17 | 12.7 | 12.5 | 12.6 | 12.4 | 12.2 | 12.3 | 13.2 | 12.9 | 13.1 | 9.3 | 8.9 | 9.1 |
| 18 | 12.8 | 12.3 | 12.5 | 12.4 | 12.2 | 12.3 | 13.1 | 11.9 | 12.6 | 9.2 | 8.6 | 8.9 |
| 19 | 12.6 | 12.2 | 12.4 | 12.5 | 12.3 | 12.4 | 13.0 | 12.7 | 12.8 | 9.5 | 8.9 | 9.3 |
| 20 | 12.6 | 12.3 | 12.5 | 12.5 | 12.2 | 12.3 | 13.0 | 12.7 | 12.9 | 9.3 | 8.9 | 9.1 |
| 21 | 12.7 | 12.5 | 12.6 | 12.5 | 12.3 | 12.4 | 12.9 | 12.7 | 12.8 | 9.1 | 8.9 | 9.0 |
| 22 | 12.9 | 12.5 | 12.7 | 12.4 | 12.2 | 12.3 | 12.7 | 11.9 | 12.3 | 9.0 | 8.8 | 8.9 |
| 23 | 12.9 | 12.7 | 12.8 | 12.3 | 12.1 | 12.2 | 12.2 | 11.8 | 12.0 | 9.1 | 8.8 | 8.9 |
| 24 | 13.0 | 12.7 | 12.9 | 12.5 | 12.1 | 12.2 | 12.1 | 11.7 | 11.9 | 11.9 | 8.8 | 10.9 |
| 25 | 14.1 | 13.0 | 13.7 | 12.6 | 12.1 | 12.4 | 11.8 | 11.1 | 11.5 | 11.9 | 11.5 | 11.6 |
| 26 | 14.0 | 13.6 | 13.8 | 12.6 | 12.3 | 12.4 | 11.8 | 11.2 | 11.5 | 11.5 | 11.5 | 11.5 |
| 27 | 13.7 | 13.6 | 13.7 | 12.4 | 12.1 | 12.3 | 11.7 | 11.1 | 11.4 | 11.5 | 9.8 | 10.4 |
| 28 | 13.7 | 12.9 | 13.2 | 12.3 | 12.1 | 12.2 | 11.4 | 10.5 | 11.1 | 9.9 | 9.4 | 9.7 |
| 29 | --- | --- | --- | 12.4 | 12.1 | 12.2 | 11.3 | 10.6 | 10.9 | 9.7 | 9.4 | 9.5 |
| 30 | --- | --- | --- | 12.4 | 12.1 | 12.2 | 11.1 | 10.4 | 10.8 | 9.6 | 9.3 | 9.4 |
| 31 | --- | --- | --- | 12.2 | 11.9 | 12.1 | --- | --- | --- | 9.3 | 9.1 | 9.3 |
| MONTH | 14.1 | 11.3 | 12.4 | 13.1 | 11.9 | 12.4 | 14.0 | 10.4 | 12.4 | 12.6 | 7.8 | 9.5 |

## 02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

### OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 9.3 | 8.9 | 9.1 | 8.3 | 8.0 | 8.1 | 8.1 | 7.9 | 8.0 | 8.4 | 8.1 | 8.2 |
| 2 | 9.3 | 9.1 | 9.2 | 8.4 | 8.1 | 8.2 | 8.2 | 7.9 | 8.0 | 8.3 | 8.1 | 8.2 |
| 3 | 9.2 | 9.1 | 9.2 | 8.4 | 8.2 | 8.3 | 8.2 | 8.0 | 8.1 | 8.3 | 8.1 | 8.1 |
| 4 | 9.3 | 9.1 | 9.2 | 8.4 | 8.3 | 8.3 | 8.2 | 8.0 | 8.1 | 8.2 | 8.0 | 8.0 |
| 5 | 9.3 | 9.1 | 9.2 | 8.4 | 8.3 | 8.4 | 8.2 | 8.1 | 8.1 | 8.1 | 7.9 | 8.0 |
| 6 | 9.3 | 9.0 | 9.2 | 8.4 | 8.1 | 8.3 | 8.3 | 8.1 | 8.2 | 8.1 | 7.8 | 7.9 |
| 7 | 9.3 | 9.0 | 9.1 | 8.3 | 7.9 | 8.1 | 8.4 | 8.1 | 8.3 | 8.1 | 7.8 | 7.9 |
| 8 | 9.3 | 8.9 | 9.1 | 8.3 | 7.8 | 8.0 | 8.4 | 8.2 | 8.3 | 8.1 | 7.7 | 7.9 |
| 9 | 9.3 | 9.1 | 9.2 | 8.1 | 7.7 | 7.9 | 8.4 | 8.1 | 8.2 | 8.4 | 7.6 | 7.9 |
| 10 | 9.3 | 8.9 | 9.1 | 7.9 | 7.7 | 7.8 | 8.3 | 8.1 | 8.2 | 8.7 | 7.8 | 8.5 |
| 11 | 9.3 | 9.0 | 9.1 | 8.0 | 7.7 | 7.9 | 8.3 | 8.1 | 8.2 | 9.1 | 8.8 | 8.9 |
| 12 | 9.2 | 8.8 | 9.0 | 7.9 | 7.7 | 7.8 | 8.3 | 8.2 | 8.2 | 9.3 | 8.9 | 9.1 |
| 13 | 9.1 | 8.8 | 9.0 | 8.0 | 7.7 | 7.8 | 8.5 | 8.1 | 8.3 | 9.5 | 9.2 | 9.3 |
| 14 | 9.1 | 8.9 | 9.0 | 8.0 | 7.8 | 7.9 | 8.7 | 7.2 | 7.8 | 9.6 | 9.3 | 9.4 |
| 15 | 9.1 | 8.9 | 9.0 | 8.0 | 7.7 | 7.9 | 8.8 | 7.6 | 8.5 | 9.7 | 9.4 | 9.5 |
| 16 | 9.0 | 8.8 | 8.9 | 8.0 | 7.7 | 7.9 | 8.8 | 8.3 | 8.7 | 9.6 | 9.4 | 9.5 |
| 17 | 9.0 | 8.7 | 8.8 | 8.0 | 7.8 | 7.9 | 8.7 | 8.4 | 8.6 | 9.7 | 9.4 | 9.5 |
| 18 | 8.8 | 8.6 | 8.7 | 8.0 | 7.8 | 7.9 | 8.7 | 8.3 | 8.5 | 9.7 | 9.5 | 9.5 |
| 19 | 8.8 | 8.5 | 8.6 | 8.1 | 7.8 | 8.0 | 8.7 | 8.3 | 8.6 | 9.7 | 9.5 | 9.6 |
| 20 | 8.8 | 8.4 | 8.6 | 8.2 | 7.8 | 8.0 | 8.7 | 8.5 | 8.6 | 9.7 | 9.4 | 9.5 |
| 21 | 8.8 | 8.5 | 8.7 | 8.2 | 7.9 | 8.1 | 8.7 | 8.3 | 8.5 | 9.6 | 9.3 | 9.4 |
| 22 | 8.9 | 8.6 | 8.7 | 8.2 | 8.0 | 8.1 | 8.7 | 8.4 | 8.5 | 9.5 | 9.3 | 9.4 |
| 23 | 8.7 | 8.4 | 8.6 | 8.4 | 8.1 | 8.2 | 8.6 | 8.4 | 8.5 | 9.5 | 9.2 | 9.3 |
| 24 | 8.6 | 8.3 | 8.4 | 8.4 | 8.1 | 8.2 | 8.5 | 8.3 | 8.4 | 9.4 | 9.1 | 9.2 |
| 25 | 8.5 | 8.2 | 8.4 | 8.2 | 8.0 | 8.1 | 8.3 | 8.2 | 8.3 | 9.4 | 9.2 | 9.3 |
| 26 | 8.5 | 7.6 | 8.1 | 8.3 | 8.1 | 8.2 | 8.5 | 8.1 | 8.3 | 9.4 | 9.1 | 9.2 |
| 27 | 8.1 | 7.8 | 8.0 | 8.3 | 8.0 | 8.1 | 8.5 | 8.3 | 8.4 | 9.3 | 9.1 | 9.2 |
| 28 | 8.2 | 7.9 | 8.0 | 8.2 | 8.1 | 8.1 | 8.5 | 8.3 | 8.4 | 9.5 | 9.3 | 9.4 |
| 29 | 8.1 | 7.9 | 8.0 | 8.2 | 8.0 | 8.1 | 8.4 | 8.2 | 8.3 | 9.6 | 9.3 | 9.4 |
| 30 | 8.2 | 7.9 | 8.1 | 8.2 | 7.9 | 8.1 | 8.4 | 8.1 | 8.2 | 9.5 | 9.1 | 9.3 |
| 31 | --- | --- | --- | 8.1 | 7.9 | 8.0 | 8.3 | 8.1 | 8.2 | --- | --- | --- |
| MONTH | 9.3 | 7.6 | 8.8 | 8.4 | 7.7 | 8.1 | 8.8 | 7.2 | 8.3 | 9.7 | 7.6 | 8.9 |
| YEAR | 14.1 | 7.2 | 10.1 | | | | | | | | | |

## 02012500 JACKSON RIVER AT FALLING SPRING, VA

LOCATION.--Lat 37°52'36", long 79°58'39", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft upstream from Smith Bridge, 0.8 mi south of town of Falling Spring, 1.6 mi downstream from Falling Spring Creek, and 5.5 mi north of Covington.

DRAINAGE AREA.--411 mi².

PERIOD OF RECORD.--Water years 1930, 1948, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1968 to current year.
WATER TEMPERATURE: December 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 500 microsiemens, Oct. 2, 1970; minimum daily, 61 microsiemens, Dec. 21, 26, 1977.
WATER TEMPERATURE: Maximum daily, 29.5°C, Aug. 2, 5, 1975; minimum daily, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 240 microsiemens, Oct. 4, 23-25; minimum daily, 150 microsiemens, May 3, June 17.
WATER TEMPERATURE: Maximum daily, 27.0°C, July 30, Aug. 14; minimum daily, 2.5°C, Jan. 21.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT<br>03... | 16:00 | 219 | 185 | 185 | 8.0 | 7.8 | 16.0 | 730 | <1 | 9.6 |
| NOV<br>15... | 14:15 | 200 | 195 | 199 | 8.4 | 7.9 | 11.5 | 728 | <1 | 10.9 |
| JAN<br>09... | 14:30 | 518 | 170 | 180 | 7.9 | 7.5 | 6.0 | 732 | <1 | 12.0 |
| FEB<br>13... | 08:45 | 935 | 155 | 154 | 7.5 | 7.3 | 1.5 | 718 | 5 | 12.7 |
| APR<br>03... | 13:10 | 554 | 155 | 164 | 8.4 | 7.7 | 10.0 | 718 | 5 | 13.0 |
| MAY<br>08... | 12:35 | 142 | 170 | 170 | 7.9 | 7.6 | 16.0 | 732 | 15 | 10.6 |
| JUN<br>26... | 14:15 | 280 | 175 | 174 | 8.1 | 7.8 | 22.5 | 727 | 15 | 9.2 |
| AUG<br>14... | 14:20 | 290 | 180 | 185 | 8.3 | 7.7 | 25.0 | 730 | 15 | 9.2 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT<br>03... | 102 | 87 | 87 | 28 | 4.1 | 2.1 | 1.6 | 68 | 22 |
| NOV<br>15... | 105 | 97 | 97 | 31 | 4.7 | 2.4 | 2.0 | 72 | 27 |
| JAN<br>09... | 100 | 83 | 83 | 27 | 3.7 | 1.9 | 1.5 | 64 | 20 |
| FEB<br>13... | 96 | 68 | 68 | 22 | 3.2 | 1.9 | 1.1 | 55 | 17 |
| APR<br>03... | 122 | 74 | 74 | 24 | 3.5 | 2.1 | 1.4 | 58 | 19 |
| MAY<br>08... | 112 | 78 | 78 | 25 | 3.7 | 1.9 | 1.4 | 60 | 21 |
| JUN<br>26... | 112 | 78 | 78 | 25 | 3.6 | 1.9 | 1.4 | 63 | 22 |
| AUG<br>14... | 117 | 87 | 87 | 28 | 4.2 | 2.2 | 1.6 | 66 | 22 |

## 02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT<br>03... | 2.9 | <0.1 | 4.7 | 102 | 110 | <0.01 | 0.12 | <0.01 | 20 |
| NOV<br>15... | 2.7 | <0.1 | 4.9 | 111 | 120 | <0.01 | 0.21 | <0.01 | 24 |
| JAN<br>09... | 2.5 | 0.1 | 5.0 | 115 | 100 | 0.02 | 0.22 | <0.01 | 7 |
| FEB<br>13... | 2.3 | <0.1 | 4.7 | 87 | 85 | <0.01 | 0.20 | <0.01 | 10 |
| APR<br>03... | 2.6 | 0.1 | 4.1 | 98 | 92 | <0.01 | 0.18 | <0.01 | 9 |
| MAY<br>08... | 2.3 | 0.2 | 4.2 | 98 | 96 | <0.01 | <0.10 | <0.01 | 5 |
| JUN<br>26... | 2.1 | <0.1 | 1.7 | 118 | 96 | <0.01 | <0.10 | <0.01 | 6 |
| AUG<br>14... | 2.4 | 0.2 | 1.9 | 111 | 100 | <0.01 | <0.10 | <0.01 | 6 |

### SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG.C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 220 | 225 | 200 | 190 | 239 | 160 | 178 | 200 | 190 | 176 | 200 | 210 |
| 2 | 220 | 222 | 200 | 170 | 210 | 165 | 178 | 205 | 198 | 190 | 200 | 205 |
| 3 | 221 | 230 | 200 | 180 | 179 | 170 | 170 | 150 | 200 | 190 | 200 | 196 |
| 4 | 240 | 238 | 208 | 180 | 170 | 170 | 170 | 155 | 198 | 185 | 182 | 218 |
| 5 | 218 | 230 | 210 | 170 | 180 | 189 | 170 | 160 | 210 | 185 | 190 | 210 |
| 6 | 220 | 230 | 210 | 185 | 190 | 185 | 170 | 170 | 199 | 185 | 200 | 210 |
| 7 | 210 | 230 | 210 | 182 | 180 | 180 | 170 | 178 | 200 | 185 | 205 | 200 |
| 8 | 218 | 230 | 210 | 190 | 200 | 190 | 158 | 200 | 190 | 185 | 210 | 205 |
| 9 | 210 | 230 | 209 | 200 | 208 | 190 | 190 | 170 | 196 | 189 | 200 | 210 |
| 10 | 218 | 230 | 209 | 200 | 200 | 180 | 180 | 180 | 196 | 189 | 200 | 210 |
| 11 | 218 | 230 | 205 | 200 | 200 | 182 | 180 | 190 | 198 | 189 | --- | 210 |
| 12 | 210 | 230 | 205 | 205 | 165 | 170 | 196 | 190 | 198 | 185 | 200 | 215 |
| 13 | 200 | 225 | 202 | 210 | 178 | 160 | 180 | 170 | 198 | --- | 200 | 210 |
| 14 | 178 | 222 | 200 | 210 | 185 | 165 | 180 | 170 | 196 | --- | 200 | 218 |
| 15 | 182 | 222 | 202 | 218 | 199 | 180 | 180 | 165 | 160 | 195 | 200 | 205 |
| 16 | 198 | 222 | 200 | 200 | 199 | 180 | 180 | 170 | 160 | 190 | 200 | 200 |
| 17 | 218 | 225 | 200 | 180 | 184 | 180 | 180 | 170 | 150 | 185 | 218 | 200 |
| 18 | 218 | 225 | 202 | 185 | 200 | 180 | 180 | 180 | 200 | 185 | 220 | 200 |
| 19 | 218 | 222 | 205 | 198 | 219 | 179 | 170 | 200 | 190 | 182 | 222 | 198 |
| 20 | 218 | 220 | 185 | 202 | 210 | 180 | 180 | 200 | 190 | 182 | 218 | 200 |
| 21 | 210 | 230 | 180 | 200 | 205 | 180 | 182 | 190 | 190 | 182 | 220 | 202 |
| 22 | 220 | 230 | 180 | 205 | 219 | 175 | 182 | 160 | 188 | 182 | 215 | 203 |
| 23 | 240 | 230 | 180 | 205 | 180 | 180 | 182 | 200 | 188 | 185 | 218 | 201 |
| 24 | 240 | 230 | 182 | 200 | 175 | 178 | 180 | 165 | 182 | 182 | 215 | 201 |
| 25 | 249 | 230 | 180 | 210 | 160 | 162 | 182 | 165 | 182 | 189 | 218 | 200 |
| 26 | 224 | 230 | 180 | 230 | 160 | 175 | 185 | 170 | 185 | 200 | 210 | 198 |
| 27 | 224 | 230 | 178 | 230 | 158 | 170 | 185 | 180 | 182 | 205 | 220 | 202 |
| 28 | 220 | 200 | 182 | 228 | 165 | 170 | 190 | 180 | 182 | 185 | 218 | 198 |
| 29 | 210 | 228 | 190 | 230 | --- | 170 | 190 | 190 | 182 | 199 | 218 | 202 |
| 30 | 222 | 198 | 190 | 230 | --- | 176 | 198 | 198 | 178 | 195 | 198 | 205 |
| 31 | 222 | --- | 190 | 220 | --- | 178 | --- | 200 | --- | 190 | 215 | --- |
| MEAN | 217 | 226 | 196 | 201 | 190 | 176 | 180 | 180 | 189 | 188 | 208 | 205 |

WTR YR 1985 MEAN 196 MAX 240 MIN 150

### 02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16.0 | 16.5 | 10.0 | 10.0 | 5.0 | 5.5 | 11.0 | 17.0 | 21.0 | 21.0 | 23.0 | 23.0 |
| 2 | 17.0 | 16.0 | 10.0 | 9.0 | 4.5 | 6.5 | 10.0 | 13.0 | 19.5 | 21.0 | 25.0 | 24.0 |
| 3 | 17.5 | 14.0 | 10.5 | 7.5 | 4.5 | 7.0 | 10.0 | 12.5 | 20.0 | 21.0 | 23.0 | 24.5 |
| 4 | 19.0 | 14.0 | 9.0 | 8.0 | 4.0 | 6.5 | 11.5 | 10.0 | 20.0 | 23.0 | 25.0 | 24.5 |
| 5 | 18.5 | 14.0 | 8.0 | 7.5 | 4.5 | 9.0 | 11.5 | 14.0 | 21.5 | 23.0 | 23.0 | 25.0 |
| 6 | 18.0 | 13.0 | 8.0 | 8.0 | 5.0 | 8.0 | 10.0 | 15.0 | 20.0 | 23.0 | 23.0 | 24.0 |
| 7 | 17.0 | 13.0 | 7.0 | 7.5 | 5.0 | 8.0 | 10.0 | 16.0 | 18.0 | 23.0 | 23.0 | 24.0 |
| 8 | 17.0 | 12.5 | 8.0 | 7.5 | 3.5 | 6.5 | 8.5 | 17.5 | 20.0 | 24.0 | 26.5 | 25.0 |
| 9 | 19.5 | 13.0 | 9.0 | 7.0 | 3.5 | 9.0 | 9.0 | 17.5 | 21.0 | 24.0 | 25.5 | 26.0 |
| 10 | 19.0 | 13.5 | 8.0 | 7.0 | 5.0 | 9.0 | 11.0 | 17.0 | 21.0 | 23.0 | 26.0 | 26.0 |
| 11 | 18.5 | 13.0 | 10.0 | 6.5 | 5.0 | 6.5 | 9.0 | 17.5 | 20.0 | 23.5 | 26.0 | 24.0 |
| 12 | 19.0 | 10.5 | 9.0 | 6.5 | 3.5 | 8.0 | 13.0 | 17.5 | 20.0 | 23.0 | 26.5 | 21.0 |
| 13 | 18.5 | 11.0 | 10.5 | 6.5 | 4.0 | 7.5 | 10.5 | 19.0 | 17.5 | --- | 26.0 | 22.0 |
| 14 | 18.5 | 11.0 | 10.0 | 6.5 | 5.5 | 7.0 | 10.0 | 20.5 | 19.5 | --- | 27.0 | 21.0 |
| 15 | 18.0 | 12.0 | 10.0 | 5.0 | 5.0 | 9.0 | 11.5 | 19.0 | 20.0 | 24.0 | 26.0 | 20.5 |
| 16 | 19.5 | 12.0 | 10.5 | 5.5 | 5.0 | 8.5 | 12.5 | 18.5 | 21.0 | 25.0 | 24.5 | 22.0 |
| 17 | 18.0 | 9.5 | 11.0 | 6.0 | 5.5 | 8.5 | 12.0 | 18.5 | 22.5 | 25.0 | 23.0 | 22.5 |
| 18 | 20.0 | 9.5 | 10.0 | 6.0 | 5.0 | 8.0 | 13.5 | 18.0 | 21.5 | 26.0 | 22.5 | 22.0 |
| 19 | 20.0 | 10.0 | 10.5 | 5.5 | 6.5 | 9.0 | 14.0 | 18.0 | 21.0 | 26.0 | 24.0 | 22.5 |
| 20 | 19.5 | 9.0 | 10.0 | 4.0 | 7.0 | 9.0 | 14.0 | 19.5 | 21.5 | 26.0 | 24.0 | 22.0 |
| 21 | 19.5 | 8.5 | 10.0 | 2.5 | 7.0 | 7.5 | 15.0 | 18.5 | 19.5 | 26.0 | 23.0 | 22.5 |
| 22 | 19.0 | 9.0 | 10.0 | 4.0 | 7.0 | 6.0 | 15.0 | 18.0 | 22.0 | 24.0 | 23.0 | 22.0 |
| 23 | 19.0 | 9.0 | 10.0 | 5.0 | 6.5 | 7.0 | 17.0 | 19.0 | 23.5 | 25.5 | 22.0 | 22.0 |
| 24 | 18.5 | 9.5 | 9.0 | 5.0 | 6.0 | 8.0 | 15.0 | 19.5 | 23.5 | 25.0 | 22.0 | 21.5 |
| 25 | 19.0 | 9.0 | 8.0 | 5.0 | 6.0 | 8.0 | 16.5 | 10.0 | 23.5 | 23.0 | 22.0 | 21.0 |
| 26 | 20.0 | 9.5 | 8.0 | 3.0 | 5.5 | 10.0 | 17.5 | 12.0 | 23.0 | 24.5 | 23.0 | 21.0 |
| 27 | 20.0 | 10.5 | 8.0 | 5.0 | 6.0 | 11.0 | 16.0 | 17.5 | 23.5 | 22.5 | 23.0 | 14.0 |
| 28 | 19.5 | 10.0 | 9.0 | 5.5 | 6.5 | 10.5 | 14.0 | 17.0 | 23.0 | 25.0 | 23.0 | 17.0 |
| 29 | 18.0 | 9.5 | 9.0 | 5.5 | --- | 10.5 | 17.0 | 19.0 | 24.0 | 26.0 | 24.0 | 19.5 |
| 30 | 17.0 | 10.0 | 9.0 | 4.0 | --- | 11.5 | 18.0 | 17.0 | 22.5 | 27.0 | 23.0 | 20.0 |
| 31 | 17.5 | --- | 9.0 | 4.5 | --- | 11.0 | --- | 20.0 | --- | 25.0 | --- | --- |
| MEAN | 18.5 | 11.5 | 9.5 | 6.0 | 5.5 | 8.5 | 13.0 | 17.0 | 21.0 | 24.0 | 24.0 | 22.0 |

WTR YR 1985 MEAN 15.0 MAX 27.0 MIN 2.5

## 02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA

**LOCATION.**--Lat 37°48'39", long 79°59'19", Covington City, Hydrologic Unit 02080201, on left bank 250 ft upstream from Dry Run and 1.7 mi upstream from Dunlap Creek and bridge on U.S. Highway 60.

**DRAINAGE AREA.**--439 mi².

**PERIOD OF DAILY RECORD.**--
**WATER TEMPERATURE:** June 1978 to current year.

**INSTRUMENTATION.**--Water-temperature recorder since June 1978.

**REMARKS.**--Some record in prior years fragmentary due to instrument malfunction.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--
**WATER TEMPERATURE:** Maximum recorded, 30.5°C, July 21, 1980; minimum recorded, 0.0°C on several days during winter periods.

**EXTREMES FOR CURRENT YEAR.**--
**WATER TEMPERATURE:** Maximum, 27.5°C, July 30, 31; minimum, 0.0°C on several days during winter period.

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 15.0 | 13.5 | 14.5 | 15.5 | 14.0 | 14.5 | 9.0 | 8.5 | 9.0 | 9.5 | 8.0 | 8.5 |
| 2 | 15.0 | 14.0 | 14.0 | 15.5 | 12.5 | 14.0 | 9.0 | 7.0 | 8.0 | 9.5 | 7.5 | 9.0 |
| 3 | 15.5 | 13.0 | 14.0 | 12.5 | 11.0 | 11.5 | 9.0 | 8.0 | 8.5 | 7.5 | 6.5 | 7.0 |
| 4 | 16.5 | 13.5 | 15.0 | 13.0 | 11.0 | 12.0 | 7.5 | 6.5 | 7.0 | 7.0 | 6.5 | 7.0 |
| 5 | 17.0 | 15.0 | 16.0 | 13.5 | 12.5 | 13.0 | 7.0 | 5.5 | 6.0 | 7.0 | 6.0 | 6.5 |
| 6 | 17.5 | 16.0 | 16.5 | 12.5 | 10.5 | 11.5 | 7.5 | 5.5 | 6.5 | 7.0 | 6.0 | 6.5 |
| 7 | 16.5 | 15.5 | 16.0 | 11.0 | 9.0 | 10.0 | 6.0 | 2.0 | 4.0 | 6.0 | 5.0 | 5.5 |
| 8 | 16.0 | 15.5 | 16.0 | 10.0 | 8.5 | 9.0 | 5.5 | 3.5 | 4.5 | 5.5 | 5.0 | 5.5 |
| 9 | 19.5 | 16.0 | 17.5 | 10.5 | 9.0 | 9.5 | 6.5 | 4.5 | 5.5 | 5.0 | 3.5 | 4.5 |
| 10 | 19.5 | 17.0 | 18.0 | 11.0 | 9.0 | 10.0 | 7.0 | 6.0 | 6.5 | 4.5 | 3.5 | 4.0 |
| 11 | 19.0 | 17.0 | 17.5 | 12.0 | 9.5 | 11.0 | 8.5 | 7.0 | 7.5 | 5.0 | 4.0 | 4.0 |
| 12 | 18.5 | 16.0 | 17.0 | 10.5 | 7.5 | 9.0 | 7.5 | 6.5 | 7.0 | 4.0 | 2.0 | 3.0 |
| 13 | 18.0 | 15.0 | 16.5 | 8.5 | 6.5 | 7.5 | 8.5 | 7.0 | 8.0 | 3.5 | 2.0 | 3.0 |
| 14 | 17.5 | 15.0 | 16.0 | 8.0 | 6.0 | 7.0 | 8.5 | 8.0 | 8.5 | 4.0 | 2.5 | 3.0 |
| 15 | 16.0 | 14.5 | 15.5 | 9.0 | 6.0 | 8.0 | 9.0 | 8.0 | 8.5 | 3.5 | 1.5 | 2.5 |
| 16 | 17.0 | 15.5 | 16.5 | 10.0 | 7.5 | 9.0 | 9.0 | 8.5 | 8.5 | 2.5 | .5 | 1.5 |
| 17 | 17.5 | 16.5 | 17.0 | 7.5 | 5.5 | 6.5 | 9.0 | 7.5 | 9.0 | 2.5 | 2.0 | 2.5 |
| 18 | 18.5 | 16.5 | 17.0 | 8.5 | 5.0 | 6.5 | 9.0 | 8.0 | 9.0 | 5.0 | 2.5 | 3.5 |
| 19 | 19.5 | 17.0 | 18.0 | 8.5 | 7.0 | 8.0 | 10.0 | 8.5 | 9.0 | 5.5 | 3.0 | 4.0 |
| 20 | 18.5 | 17.0 | 17.5 | 8.5 | 5.0 | 7.5 | 9.0 | 7.5 | 8.5 | 3.0 | .0 | 1.0 |
| 21 | 19.5 | 17.0 | 18.0 | 7.0 | 3.5 | 5.5 | 8.5 | 7.0 | 8.0 | .0 | .0 | .0 |
| 22 | 20.0 | 17.5 | 19.0 | 6.0 | 4.0 | 5.0 | 8.5 | 7.5 | 8.5 | .0 | .0 | .0 |
| 23 | 20.0 | 17.5 | 18.5 | 6.5 | 4.0 | 5.5 | 7.0 | 6.0 | 6.5 | .0 | .0 | .0 |
| 24 | 18.5 | 17.5 | 17.5 | 7.0 | 5.0 | 6.0 | 8.0 | 5.0 | 6.0 | 2.0 | .5 | 1.0 |
| 25 | 17.5 | 17.0 | 17.0 | 7.0 | 5.0 | 6.5 | 8.5 | 4.5 | 7.0 | 3.0 | 1.5 | 2.5 |
| 26 | 18.5 | 17.0 | 17.5 | 7.0 | 5.5 | 6.5 | 7.0 | 4.5 | 6.0 | 1.5 | .0 | .5 |
| 27 | 18.0 | 16.0 | 17.0 | 8.5 | 6.0 | 7.5 | 7.0 | 5.5 | 6.5 | .5 | .0 | .0 |
| 28 | 18.0 | 16.0 | 17.0 | 12.0 | 9.0 | 10.0 | 7.5 | 6.5 | 7.0 | 2.5 | .5 | 1.5 |
| 29 | 17.5 | 15.5 | 16.5 | 8.5 | 7.0 | 8.0 | 8.5 | 7.0 | 8.0 | 3.0 | 2.0 | 2.0 |
| 30 | 15.5 | 14.0 | 15.0 | 9.0 | 5.0 | 7.0 | 8.5 | 7.5 | 8.0 | 3.5 | .5 | 1.5 |
| 31 | 16.0 | 14.0 | 15.0 | --- | --- | --- | 9.0 | 8.0 | 8.5 | 4.5 | 2.0 | 3.5 |
| MONTH | 20.0 | 13.0 | 16.5 | 15.5 | 3.5 | 9.0 | 10.0 | 2.0 | 7.5 | 9.5 | .0 | 3.5 |

## 02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 4.0 | 2.0 | 3.0 | 5.0 | 2.5 | 4.0 | 11.0 | 8.0 | 9.5 | 16.5 | 14.0 | 15.5 |
| 2 | 4.0 | 2.5 | 3.5 | 6.0 | 3.5 | 5.0 | 9.0 | 7.0 | 8.0 | 16.5 | 14.5 | 15.5 |
| 3 | 3.5 | 2.0 | 2.5 | 6.0 | 2.5 | 4.5 | 9.0 | 6.0 | 7.5 | 18.0 | 7.5 | 14.0 |
| 4 | 2.5 | 2.0 | 2.5 | 5.5 | 4.0 | 5.0 | 11.0 | 7.0 | 9.0 | 11.0 | 7.0 | 9.0 |
| 5 | 3.0 | 2.0 | 2.5 | 8.0 | 5.0 | 6.5 | 12.0 | 8.5 | 10.5 | 14.5 | 9.5 | 11.5 |
| 6 | 4.0 | 2.5 | 3.5 | 6.5 | 2.5 | 5.0 | 11.5 | 9.0 | 10.0 | 14.5 | 10.5 | 12.5 |
| 7 | 3.5 | 2.0 | 2.5 | 6.0 | 3.5 | 5.0 | 9.0 | 6.0 | 8.0 | 16.0 | 13.5 | 15.0 |
| 8 | 2.0 | .0 | 1.0 | 6.0 | 4.5 | 5.0 | 9.0 | 7.0 | 8.0 | 16.0 | 13.0 | 14.5 |
| 9 | 1.0 | .0 | .5 | 7.5 | 4.0 | 6.0 | 8.5 | 6.0 | 7.5 | 16.0 | 12.0 | 14.5 |
| 10 | 2.5 | .5 | 1.5 | 7.0 | 4.0 | 6.0 | 9.0 | 5.0 | 7.5 | 15.5 | 13.0 | 14.5 |
| 11 | 2.5 | 2.0 | 2.5 | 7.0 | 4.0 | 6.0 | 9.0 | 7.5 | 8.5 | 17.5 | 14.0 | 16.0 |
| 12 | 4.0 | 2.0 | 2.5 | 9.0 | 7.0 | 8.0 | 12.0 | 7.0 | 9.5 | 20.5 | 16.5 | 18.5 |
| 13 | 2.5 | 1.5 | 2.0 | 7.5 | 2.5 | 5.5 | 12.0 | 9.5 | 11.0 | 22.0 | 19.0 | 20.5 |
| 14 | 3.0 | 1.0 | 2.0 | 7.0 | 4.0 | 6.0 | 12.0 | 10.0 | 11.0 | 21.5 | 17.5 | 20.0 |
| 15 | 2.5 | 1.5 | 2.0 | 7.5 | 3.5 | 5.5 | 12.5 | 10.0 | 11.0 | 21.0 | 17.5 | 19.5 |
| 16 | 2.0 | .5 | 1.5 | 7.0 | 3.0 | 5.0 | 13.5 | 11.5 | 12.5 | 20.5 | 16.0 | 18.5 |
| 17 | 3.0 | 1.5 | 2.0 | 7.5 | 4.0 | 6.5 | 14.0 | 9.5 | 12.0 | 20.0 | 16.0 | 17.0 |
| 18 | 3.0 | 1.5 | 2.5 | 6.5 | 4.0 | 5.5 | 14.5 | 10.5 | 12.5 | 18.5 | 15.0 | 16.5 |
| 19 | 5.5 | 3.0 | 4.0 | 7.0 | 2.5 | 5.5 | 15.0 | 12.0 | 13.5 | 20.5 | 15.5 | 18.0 |
| 20 | 5.5 | 2.5 | 4.0 | 7.5 | 4.5 | 6.5 | 14.5 | 12.0 | 13.5 | 21.0 | 14.5 | 18.0 |
| 21 | 5.5 | 2.5 | 4.0 | 7.0 | 4.5 | 5.5 | 15.0 | 11.0 | 13.5 | 19.5 | 16.0 | 18.0 |
| 22 | 6.0 | 5.0 | 5.5 | 6.5 | 2.5 | 5.0 | 14.0 | 12.5 | 13.0 | 18.5 | 16.5 | 17.0 |
| 23 | 6.5 | 3.0 | 5.0 | 7.0 | 2.5 | 6.0 | 16.0 | 11.5 | 14.0 | 21.0 | 18.0 | 19.5 |
| 24 | 7.0 | 4.0 | 5.5 | 10.0 | 6.5 | 8.0 | 16.0 | 13.0 | 15.0 | 19.5 | 9.5 | 16.5 |
| 25 | 5.5 | 4.0 | 5.0 | 7.5 | 6.0 | 7.0 | 16.0 | 12.5 | 15.0 | 12.5 | 9.0 | 10.5 |
| 26 | 6.5 | 5.0 | 5.5 | 9.0 | 4.5 | 7.0 | 16.5 | 12.5 | 14.5 | 13.0 | 9.0 | 10.5 |
| 27 | 5.5 | 3.5 | 4.5 | 9.5 | 5.5 | 8.0 | 16.0 | 12.5 | 14.0 | 17.0 | 8.5 | 10.5 |
| 28 | 5.5 | 2.5 | 4.0 | 10.5 | 7.5 | 9.0 | 16.0 | 13.5 | 14.5 | 17.0 | 14.5 | 16.0 |
| 29 | --- | --- | --- | 10.5 | 9.0 | 9.5 | 17.0 | 13.0 | 15.0 | 19.5 | 16.0 | 17.5 |
| 30 | --- | --- | --- | 10.5 | 7.5 | 9.0 | 17.0 | 14.0 | 15.5 | 18.5 | 16.5 | 17.5 |
| 31 | --- | --- | --- | 9.5 | 8.0 | 8.5 | --- | --- | --- | 19.5 | 17.0 | 18.0 |
| MONTH | 7.0 | .0 | 3.0 | 10.5 | 2.5 | 6.5 | 17.0 | 5.0 | 11.5 | 22.0 | 7.0 | 16.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 22.0 | 18.5 | 20.0 | 22.5 | 20.5 | 22.0 | 25.5 | 24.0 | 24.5 | 21.0 | 19.0 | 20.0 |
| 2 | 21.0 | 18.0 | 19.5 | 23.0 | 19.5 | 21.5 | 25.0 | 22.5 | 23.5 | 22.0 | 19.5 | 20.5 |
| 3 | 21.5 | 18.0 | 19.5 | 24.0 | 20.0 | 22.0 | 25.0 | 22.0 | 23.0 | 22.5 | 20.0 | 21.0 |
| 4 | 21.5 | 19.0 | 20.0 | 25.0 | 21.5 | 23.0 | 25.0 | 21.5 | 22.5 | 23.5 | 20.5 | 22.0 |
| 5 | 24.0 | 20.0 | 22.0 | 23.5 | 20.5 | 22.5 | 23.0 | 21.5 | 22.0 | 23.5 | 20.5 | 22.0 |
| 6 | 23.0 | 21.0 | 22.0 | 23.0 | 21.5 | 22.5 | 22.0 | 21.5 | 21.5 | 23.5 | 21.0 | 22.0 |
| 7 | 21.0 | 19.5 | 20.5 | 23.5 | 20.5 | 22.0 | 25.0 | 21.5 | 23.0 | 23.5 | 20.5 | 21.5 |
| 8 | 23.0 | 18.5 | 20.5 | 25.0 | 21.0 | 23.0 | 27.0 | 23.5 | 25.0 | 23.5 | 21.0 | 22.5 |
| 9 | 23.0 | 19.5 | 21.5 | 25.0 | 22.0 | 23.5 | 27.0 | 24.5 | 26.0 | 24.0 | 21.5 | 23.0 |
| 10 | 24.5 | 20.5 | 22.0 | 25.0 | 20.5 | 23.0 | 26.0 | 24.0 | 25.0 | 23.5 | 21.5 | 22.5 |
| 11 | 24.5 | 21.5 | 23.0 | 26.5 | 20.5 | 24.0 | 25.5 | 23.5 | 24.5 | 22.5 | 20.5 | 21.5 |
| 12 | 23.0 | 20.5 | 22.0 | 25.5 | 24.0 | 25.0 | 26.0 | 23.5 | 24.5 | 20.5 | 17.5 | 19.0 |
| 13 | 20.0 | 16.5 | 18.5 | 25.0 | 22.5 | 23.5 | 26.0 | 24.0 | 25.0 | 19.0 | 16.0 | 17.0 |
| 14 | 20.0 | 16.0 | 17.5 | 25.0 | 22.5 | 23.5 | 25.5 | 23.5 | 24.0 | 18.0 | 15.5 | 16.5 |
| 15 | 21.0 | 16.5 | 18.5 | 25.5 | 22.0 | 24.0 | 25.0 | 23.0 | 24.0 | 18.0 | 15.5 | 16.5 |
| 16 | 22.0 | 20.5 | 21.0 | 25.0 | 22.0 | 24.0 | 24.0 | 22.5 | 23.5 | 18.5 | 15.5 | 16.5 |
| 17 | 24.5 | 20.0 | 22.0 | 25.0 | 22.5 | 24.0 | 24.0 | 21.5 | 23.0 | 18.5 | 15.5 | 17.0 |
| 18 | 24.5 | 22.0 | 23.5 | 25.5 | 23.0 | 24.5 | 23.5 | 21.0 | 22.5 | 18.5 | 15.5 | 17.0 |
| 19 | 22.0 | 20.0 | 21.5 | 25.5 | 23.0 | 24.5 | 23.0 | 20.5 | 22.0 | 19.5 | 16.5 | 17.5 |
| 20 | 22.0 | 18.5 | 20.5 | 26.0 | 23.0 | 24.5 | 23.5 | 21.0 | 22.0 | 19.5 | 17.0 | 18.0 |
| 21 | 22.5 | 18.5 | 20.5 | 26.0 | 23.0 | 25.0 | 25.0 | 22.5 | 23.5 | 19.0 | 17.0 | 18.0 |
| 22 | 22.0 | 19.5 | 21.0 | 25.0 | 23.0 | 24.0 | 23.0 | 20.0 | 22.0 | 18.5 | 16.5 | 17.5 |
| 23 | 24.5 | 20.5 | 22.0 | 25.0 | 22.5 | 23.5 | 22.0 | 20.0 | 20.5 | 19.0 | 16.5 | 17.5 |
| 24 | 24.5 | 21.5 | 22.5 | 24.5 | 22.0 | 23.5 | 21.0 | 19.0 | 20.0 | 19.0 | 16.5 | 18.0 |
| 25 | 24.5 | 21.5 | 23.0 | 25.5 | 23.5 | 25.0 | 22.0 | 19.0 | 21.0 | 17.5 | 15.0 | 16.5 |
| 26 | 23.0 | 20.5 | 21.5 | 26.0 | 23.5 | 24.5 | 22.5 | 21.5 | 22.0 | 17.5 | 16.5 | 17.0 |
| 27 | 22.5 | 19.0 | 21.0 | 26.0 | 24.5 | 25.0 | 24.0 | 22.0 | 22.5 | 16.5 | 14.0 | 16.0 |
| 28 | 23.0 | 19.0 | 21.0 | 25.5 | 24.0 | 25.0 | 22.5 | 20.5 | 21.5 | 16.5 | 13.5 | 14.5 |
| 29 | 23.0 | 19.5 | 21.5 | 27.0 | 24.0 | 25.5 | 22.0 | 20.0 | 21.0 | 16.5 | 14.0 | 15.0 |
| 30 | 23.0 | 21.0 | 22.0 | 27.5 | 24.0 | 25.5 | 21.0 | 19.5 | 20.5 | 16.5 | 14.0 | 15.0 |
| 31 | --- | --- | --- | 27.5 | 25.5 | 26.5 | 21.0 | 19.0 | 20.0 | --- | --- | --- |
| MONTH | 24.5 | 16.0 | 21.0 | 27.5 | 19.5 | 24.0 | 27.0 | 19.0 | 23.0 | 24.0 | 13.5 | 18.5 |
| YEAR | 27.5 | .0 | 13.5 | | | | | | | | | |

## 02013000 DUNLAP CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°48'10", long 80°02'50", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft downstream from bridge on U.S. Highway 60, 2.2 mi downstream from Ogle Creek, and 3.0 mi west of Covington.

DRAINAGE AREA.--164 mi$^2$.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1929-30, 1932-34, 1942. WSP 1303: 1929-35(M), 1937-38(M), 1941-48(M). WSP 2104: Drainage area. WDR VA-74-1: 1969(M), 1972, 1973(P).

GAGE.--Water-stage recorder. Datum of gage is 1,294.70 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-24, 26, 27. Records fair. Occasional diurnal fluctuation caused by dam 7.9 mi upstream from station. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 167 ft$^3$/s, 13.83 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,400 ft$^3$/s, June 21, 1972, gage height, 15.65 ft, from rating curve extended above 4,500 ft$^3$/s on basis of step-backwater computations and contracted-opening measurement at gage height 15.65 ft; minimum, 2.0 ft$^3$/s, July 4, 1970; minimum daily, 7.0 ft$^3$/s, Sept. 9, 1966; minimum gage height, 0.69 ft, June 6, July 14, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 18 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 0400 | *3,470 | *6.85 | Aug. 18 | 1730 | 2,330 | 5.71 |

Minimum discharge, 3.7 ft$^3$/s, July 19, gage height, 0.82 ft; minimum daily, 14 ft$^3$/s, Sept. 28-30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 119 | 71 | 264 | 257 | 726 | 317 | 151 | 91 | 66 | 27 | 35 | 38 |
| 2 | 96 | 63 | 193 | 341 | 2860 | 263 | 135 | 88 | 59 | 30 | 45 | 35 |
| 3 | 65 | 57 | 160 | 518 | 1410 | 213 | 130 | 101 | 55 | 29 | 39 | 32 |
| 4 | 52 | 56 | 137 | 1130 | 656 | 182 | 125 | 89 | 53 | 27 | 33 | 30 |
| 5 | 46 | 73 | 121 | 778 | 424 | 168 | 117 | 80 | 53 | 25 | 30 | 28 |
| 6 | 42 | 86 | 128 | 494 | 336 | 145 | 134 | 76 | 55 | 24 | 28 | 27 |
| 7 | 39 | 79 | 117 | 391 | 261 | 127 | 130 | 72 | 52 | 24 | 27 | 26 |
| 8 | 37 | 72 | 107 | 319 | 198 | 122 | 132 | 67 | 53 | 22 | 30 | 27 |
| 9 | 37 | 67 | 104 | 247 | 174 | 136 | 132 | 61 | 49 | 22 | 37 | 24 |
| 10 | 35 | 63 | 110 | 208 | 158 | 128 | 126 | 57 | 45 | 25 | 38 | 23 |
| 11 | 35 | 74 | 134 | 197 | 143 | 142 | 121 | 55 | 44 | 33 | 30 | 23 |
| 12 | 34 | 83 | 183 | 177 | 344 | 288 | 116 | 58 | 49 | 27 | 27 | 21 |
| 13 | 34 | 84 | 185 | 152 | 294 | 298 | 109 | 68 | 50 | 26 | 24 | 21 |
| 14 | 33 | 79 | 160 | 133 | 199 | 254 | 108 | 61 | 45 | 28 | 23 | 21 |
| 15 | 32 | 73 | 140 | 125 | 166 | 212 | 106 | 57 | 42 | 28 | 21 | 20 |
| 16 | 36 | 69 | 128 | 112 | 140 | 179 | 163 | 56 | 40 | 24 | 21 | 19 |
| 17 | 35 | 64 | 119 | 98 | 134 | 164 | 225 | 54 | 35 | 22 | 23 | 18 |
| 18 | 35 | 61 | 112 | 101 | 118 | 150 | 214 | 54 | 38 | 21 | 866 | 17 |
| 19 | 34 | 196 | 110 | 96 | 119 | 131 | 192 | 52 | 37 | 19 | 610 | 17 |
| 20 | 34 | 321 | 112 | 90 | 133 | 118 | 171 | 48 | 34 | 19 | 216 | 17 |
| 21 | 33 | 219 | 159 | 81 | 161 | 110 | 152 | 45 | 32 | 18 | 168 | 16 |
| 22 | 38 | 164 | 274 | 95 | 215 | 110 | 136 | 43 | 31 | 18 | 112 | 16 |
| 23 | 68 | 133 | 250 | 92 | 373 | 256 | 124 | 47 | 29 | 18 | 83 | 16 |
| 24 | 93 | 113 | 222 | 90 | 581 | 403 | 117 | 253 | 28 | 17 | 69 | 16 |
| 25 | 79 | 100 | 332 | 78 | 520 | 346 | 139 | 678 | 27 | 21 | 67 | 15 |
| 26 | 70 | 88 | 382 | 65 | 644 | 272 | 124 | 279 | 25 | 33 | 71 | 15 |
| 27 | 63 | 79 | 308 | 60 | 600 | 232 | 117 | 171 | 24 | 42 | 73 | 15 |
| 28 | 58 | 407 | 249 | 64 | 409 | 208 | 114 | 125 | 23 | 44 | 61 | 14 |
| 29 | 168 | 737 | 209 | 58 | --- | 185 | 108 | 102 | 20 | 32 | 52 | 14 |
| 30 | 115 | 384 | 180 | 56 | --- | 163 | 98 | 85 | 22 | 28 | 46 | 14 |
| 31 | 85 | --- | 200 | 62 | --- | 148 | --- | 74 | --- | 28 | 43 | --- |
| TOTAL | 1780 | 4215 | 5589 | 6765 | 12496 | 6170 | 4066 | 3247 | 1215 | 801 | 3048 | 635 |
| MEAN | 57.4 | 141 | 180 | 218 | 446 | 199 | 136 | 105 | 40.5 | 25.8 | 98.3 | 21.2 |
| MAX | 168 | 737 | 382 | 1130 | 2860 | 403 | 225 | 678 | 66 | 44 | 866 | 38 |
| MIN | 32 | 56 | 104 | 56 | 118 | 110 | 98 | 43 | 20 | 17 | 21 | 14 |
| CFSM | .35 | .86 | 1.10 | 1.33 | 2.72 | 1.21 | .83 | .64 | .25 | .16 | .60 | .13 |
| IN. | .40 | .96 | 1.27 | 1.53 | 2.83 | 1.40 | .92 | .74 | .28 | .18 | .69 | .14 |

CAL YR 1984 TOTAL 94167 MEAN 257 MAX 4930 MIN 26 CFSM 1.57 IN. 21.36
WTR YR 1985 TOTAL 50027 MEAN 137 MAX 2860 MIN 14 CFSM .84 IN. 11.35

## 02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA

LOCATION.--Lat 37°47'19", long 80°00'03", Covington City, Hydrologic Unit 02080201, on left bank in city recreation park and 0.5 mi downstream from Dunlap Creek.

DRAINAGE AREA.--614 mi$^2$.

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR VA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,206.53 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Small diurnal fluctuation at low flow caused by Westvaco plant 0.8 mi upstream and occasionally by dam on Dunlap Creek 12.7 mi upstream. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 19.9 mi upstream; since October 1984 by Back Creek Lake 47.9 mi upstream; and since January 1985 by Little Back Creek Lake 51.0 mi upstream, amount unknown. Diversion by Westvaco plant averages 47 ft$^3$/s for industrial use of which approximately 42 ft$^3$/s is returned upstream from station. Diversion 2.0 mi upstream from station for city of Covington water supply averages less than 4.0 ft$^3$/s. U.S. Army Corps of Engineers gage-height transmitter at station, receiver at Gathright Dam. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 733 ft$^3$/s, 16.21 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,200 ft$^3$/s, Apr. 5, 1977, gage height, 19.85 ft; minimum, 41 ft$^3$/s, Jan. 5, 1981, gage height, 4.38 ft, result of freezeup; minimum daily, 67 ft$^3$/s, Sept. 3, 27-29, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 24.36 ft, discharge, about 34,000 ft$^3$/s, from floodmarks, and flood of Dec. 27, 1973, reached a stage of 22.09 ft, from floodmarks, discharge, about 28,000 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,550 ft$^3$/s, Feb. 1, gage height, 8.92 ft; minimum, 175 ft$^3$/s, Oct. 4, gage height, 4.65 ft; minimum daily, 238 ft$^3$/s, Oct. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 475 | 363 | 1170 | 877 | 2210 | 1560 | 758 | 376 | 387 | 318 | 364 | 355 |
| 2 | 403 | 340 | 840 | 1070 | 3760 | 1290 | 735 | 336 | 377 | 325 | 358 | 346 |
| 3 | 289 | 301 | 713 | 1750 | 2480 | 1120 | 729 | 1030 | 367 | 317 | 339 | 344 |
| 4 | 251 | 297 | 613 | 2600 | 1860 | 956 | 725 | 2450 | 356 | 316 | 328 | 339 |
| 5 | 251 | 353 | 531 | 2560 | 1410 | 691 | 710 | 1180 | 367 | 313 | 324 | 336 |
| 6 | 250 | 369 | 545 | 2430 | 933 | 648 | 744 | 991 | 361 | 310 | 318 | 333 |
| 7 | 244 | 344 | 517 | 1420 | 899 | 611 | 737 | 609 | 356 | 309 | 322 | 328 |
| 8 | 242 | 324 | 490 | 1270 | 746 | 607 | 692 | 490 | 355 | 308 | 333 | 327 |
| 9 | 243 | 312 | 483 | 945 | 534 | 618 | 586 | 549 | 342 | 304 | 325 | 325 |
| 10 | 241 | 303 | 488 | 725 | 493 | 602 | 576 | 496 | 339 | 327 | 333 | 324 |
| 11 | 240 | 330 | 520 | 687 | 479 | 625 | 564 | 376 | 330 | 327 | 322 | 322 |
| 12 | 239 | 343 | 584 | 616 | 1090 | 910 | 519 | 397 | 333 | 317 | 313 | 323 |
| 13 | 241 | 335 | 593 | 489 | 1300 | 1290 | 550 | 440 | 333 | 319 | 310 | 318 |
| 14 | 245 | 325 | 554 | 470 | 975 | 1470 | 549 | 598 | 327 | 342 | 314 | 316 |
| 15 | 511 | 312 | 520 | 455 | 655 | 997 | 550 | 620 | 319 | 322 | 320 | 319 |
| 16 | 443 | 304 | 502 | 418 | 605 | 744 | 654 | 669 | 322 | 316 | 349 | 313 |
| 17 | 241 | 294 | 486 | 431 | 583 | 720 | 714 | 600 | 317 | 309 | 364 | 308 |
| 18 | 244 | 294 | 477 | 416 | 504 | 701 | 700 | 527 | 328 | 311 | 1290 | 307 |
| 19 | 238 | 523 | 463 | 412 | 366 | 668 | 674 | 330 | 317 | 309 | 1320 | 301 |
| 20 | 240 | 737 | 441 | 389 | 401 | 647 | 644 | 326 | 313 | 311 | 711 | 302 |
| 21 | 240 | 539 | 615 | 316 | 497 | 634 | 597 | 327 | 312 | 314 | 616 | 302 |
| 22 | 253 | 446 | 1000 | 382 | 602 | 639 | 508 | 334 | 297 | 312 | 509 | 306 |
| 23 | 320 | 395 | 1080 | 376 | 1110 | 814 | 488 | 348 | 302 | 318 | 453 | 306 |
| 24 | 415 | 367 | 1030 | 369 | 1510 | 982 | 489 | 1070 | 299 | 313 | 435 | 297 |
| 25 | 338 | 344 | 1220 | 353 | 2520 | 1010 | 520 | 2840 | 301 | 336 | 434 | 300 |
| 26 | 317 | 322 | 1400 | 259 | 3750 | 1020 | 486 | 1600 | 297 | 363 | 440 | 295 |
| 27 | 299 | 310 | 1370 | 244 | 3240 | 846 | 471 | 1260 | 299 | 393 | 447 | 299 |
| 28 | 290 | 993 | 1270 | 252 | 2470 | 820 | 469 | 887 | 295 | 361 | 420 | 297 |
| 29 | 714 | 1530 | 893 | 248 | --- | 797 | 446 | 672 | 296 | 335 | 400 | 295 |
| 30 | 478 | 1030 | 797 | 240 | --- | 772 | 398 | 524 | 304 | 324 | 390 | 287 |
| 31 | 401 | --- | 754 | 270 | --- | 751 | --- | 408 | --- | 353 | 381 | --- |
| TOTAL | 9836 | 13379 | 22959 | 23739 | 37982 | 26560 | 17982 | 23660 | 9848 | 10052 | 13882 | 9470 |
| MEAN | 317 | 446 | 741 | 766 | 1357 | 857 | 599 | 763 | 328 | 324 | 448 | 316 |
| MAX | 714 | 1530 | 1400 | 2600 | 3760 | 1560 | 758 | 2840 | 387 | 393 | 1320 | 355 |
| MIN | 238 | 294 | 441 | 240 | 366 | 602 | 398 | 326 | 295 | 304 | 310 | 287 |
| (*) | -46 | +277 | +166 | +78 | +126 | +3 | -3 | +8 | -72 | -158 | -122 | -188 |
| MEAN† | 271 | 723 | 907 | 844 | 1482 | 860 | 596 | 771 | 256 | 166 | 326 | 128 |
| CFSM† | .44 | 1.18 | 1.48 | 1.37 | 2.41 | 1.40 | .97 | 1.26 | .42 | .27 | .53 | .21 |
| IN.† | .51 | 1.31 | 1.70 | 1.58 | 2.51 | 1.61 | 1.08 | 1.45 | .47 | .31 | .61 | .23 |

CAL YR 1984 TOTAL 344472 MEAN 941 MAX 8060 MIN 238 MEAN† 962 CFSM† 1.57 IN.† 21.34
WTR YR 1985 TOTAL 219349 MEAN 601 MAX 3760 MIN 238 MEAN† 606 CFSM† .99 IN.† 13.40

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02014000 POTTS CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°43'44", long 80°02'33", Alleghany County, Hydrologic Unit 02080201, on left bank at downstream side of bridge on State Highway 18, 0.8 mi downstream from Blue Spring Creek, and 5.2 mi southwest of Covington.

DRAINAGE AREA.--153 mi$^2$.

PERIOD OF RECORD.--October 1928 to September 1956, October 1965 to current year.

REVISED RECORDS.--WSP 1723: 1935, 1936(M), 1940(M), 1942(M), 1948-49(M), 1951-52(M), 1954(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,273.93 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 16 to Dec. 3 and Jan. 21-23. Records good except those for period of no gage-height record, Nov. 16 to Dec. 3, and period with ice effect, Jan. 21-23, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--48 years, 179 ft$^3$/s, 15.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft$^3$/s, June 21, 1972, gage height, 12.33 ft; minimum observed, 13 ft$^3$/s, Nov. 29, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,400 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1630 | *4,440 | *8.30 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 29 ft$^3$/s, Sept. 29, 30, gage height, 2.20 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 112 | 51 | 210 | 208 | 1240 | 350 | 173 | 109 | 104 | 41 | 50 | 50 |
| 2 | 83 | 50 | 170 | 224 | 1740 | 303 | 155 | 107 | 90 | 47 | 69 | 46 |
| 3 | 58 | 48 | 140 | 325 | 1030 | 256 | 143 | 119 | 83 | 45 | 68 | 42 |
| 4 | 50 | 50 | 124 | 800 | 644 | 223 | 135 | 104 | 76 | 39 | 49 | 40 |
| 5 | 46 | 60 | 114 | 668 | 479 | 205 | 125 | 93 | 76 | 38 | 41 | 38 |
| 6 | 44 | 61 | 118 | 467 | 396 | 178 | 140 | 87 | 71 | 37 | 39 | 38 |
| 7 | 43 | 58 | 105 | 391 | 316 | 156 | 140 | 82 | 68 | 36 | 38 | 37 |
| 8 | 43 | 55 | 93 | 333 | 247 | 149 | 135 | 76 | 74 | 34 | 52 | 37 |
| 9 | 45 | 53 | 98 | 274 | 198 | 162 | 134 | 72 | 67 | 34 | 213 | 35 |
| 10 | 44 | 52 | 96 | 232 | 194 | 150 | 128 | 69 | 59 | 39 | 89 | 34 |
| 11 | 44 | 63 | 114 | 209 | 184 | 153 | 124 | 77 | 56 | 38 | 59 | 33 |
| 12 | 43 | 70 | 141 | 181 | 471 | 203 | 121 | 77 | 61 | 35 | 47 | 33 |
| 13 | 43 | 67 | 138 | 150 | 330 | 193 | 114 | 77 | 63 | 38 | 42 | 33 |
| 14 | 43 | 61 | 127 | 155 | 231 | 185 | 113 | 68 | 56 | 36 | 38 | 33 |
| 15 | 44 | 59 | 116 | 150 | 197 | 174 | 114 | 64 | 51 | 36 | 37 | 32 |
| 16 | 46 | 58 | 108 | 120 | 163 | 159 | 197 | 65 | 51 | 34 | 36 | 32 |
| 17 | 45 | 56 | 104 | 140 | 160 | 152 | 258 | 71 | 55 | 33 | 49 | 31 |
| 18 | 46 | 55 | 100 | 127 | 140 | 146 | 233 | 68 | 56 | 33 | 2160 | 31 |
| 19 | 45 | 110 | 97 | 120 | 143 | 133 | 216 | 64 | 48 | 32 | 1340 | 31 |
| 20 | 45 | 150 | 95 | 100 | 144 | 123 | 196 | 62 | 44 | 31 | 521 | 31 |
| 21 | 44 | 130 | 108 | 90 | 155 | 116 | 176 | 56 | 42 | 31 | 321 | 30 |
| 22 | 49 | 110 | 125 | 89 | 181 | 118 | 158 | 55 | 41 | 33 | 217 | 30 |
| 23 | 73 | 100 | 124 | 100 | 258 | 256 | 145 | 66 | 39 | 32 | 156 | 30 |
| 24 | 96 | 94 | 123 | 114 | 372 | 352 | 143 | 457 | 38 | 31 | 124 | 30 |
| 25 | 80 | 90 | 170 | 103 | 431 | 328 | 217 | 831 | 38 | 39 | 123 | 30 |
| 26 | 67 | 80 | 206 | 87 | 568 | 286 | 169 | 431 | 37 | 56 | 126 | 30 |
| 27 | 61 | 70 | 189 | 82 | 536 | 256 | 153 | 284 | 35 | 73 | 105 | 30 |
| 28 | 59 | 150 | 174 | 79 | 424 | 234 | 144 | 210 | 34 | 59 | 80 | 30 |
| 29 | 58 | 350 | 159 | 76 | --- | 212 | 132 | 167 | 34 | 45 | 67 | 30 |
| 30 | 55 | 260 | 146 | 71 | --- | 189 | 118 | 136 | 35 | 39 | 59 | 29 |
| 31 | 53 | --- | 172 | 102 | --- | 171 | --- | 119 | --- | 38 | 54 | --- |
| TOTAL | 1707 | 2721 | 4104 | 6367 | 11572 | 6271 | 4649 | 4423 | 1682 | 1212 | 6469 | 1016 |
| MEAN | 55.1 | 90.7 | 132 | 205 | 413 | 202 | 155 | 143 | 56.1 | 39.1 | 209 | 33.9 |
| MAX | 112 | 350 | 210 | 800 | 1740 | 352 | 258 | 831 | 104 | 73 | 2160 | 50 |
| MIN | 43 | 48 | 93 | 71 | 140 | 116 | 113 | 55 | 34 | 31 | 36 | 29 |
| CFSM | .36 | .59 | .86 | 1.34 | 2.70 | 1.32 | 1.01 | .93 | .37 | .26 | 1.37 | .22 |
| IN. | .42 | .66 | 1.00 | 1.55 | 2.81 | 1.52 | 1.13 | 1.08 | .41 | .29 | 1.57 | .25 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 83285 | MEAN | 228 | MAX | 3190 | MIN | 34 | CFSM | 1.49 | IN. 20.25 |
| WTR YR 1985 | TOTAL | 52193 | MEAN | 143 | MAX | 2160 | MIN | 29 | CFSM | .93 | IN. 12.69 |

## 02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA

LOCATION.--Lat 38°11'43", long 79°34'14", Bath County, Hydrologic Unit 02080201, on left bank 15 ft downstream from bridge on State Highway 614 at Williamsville and 0.62 mi upstream from mouth.

DRAINAGE AREA.--110 mi².

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,610.14 ft above National Geodetic Vertical Datum of 1929. Prior to July 12, 1974, at site 700 ft upstream at datum 11.84 ft higher.

REMARKS.--Estimated daily discharges: Jan. 21-23. Records good except those for period with ice effect, Jan. 21-23, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 147 ft³/s, 18.15 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,430 ft³/s, Apr. 5, 1977, from rating curve extended above 3,300 ft³/s; maximum gage height, 10.84 ft, Dec. 26, 1973, from floodmarks; minimum discharge, 19 ft³/s, Jan. 4, 1981, result of freezeup; minimum daily, 23 ft³/s, Sept. 8, 9, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| May 3 | 0530 | *4,210 | *7.00 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 32 ft³/s, July 24-25, Sept. 30, gage height, 2.53 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 113 | 60 | 245 | 189 | 196 | 290 | 154 | 62 | 97 | 45 | 77 | 55 |
| 2 | 81 | 56 | 186 | 327 | 343 | 242 | 141 | 85 | 85 | 48 | 92 | 51 |
| 3 | 58 | 52 | 167 | 353 | 200 | 206 | 134 | 2290 | 81 | 45 | 62 | 48 |
| 4 | 51 | 55 | 141 | 520 | 154 | 180 | 129 | 680 | 77 | 42 | 52 | 46 |
| 5 | 47 | 157 | 127 | 519 | 136 | 167 | 122 | 365 | 78 | 41 | 47 | 45 |
| 6 | 45 | 116 | 139 | 343 | 132 | 144 | 146 | 259 | 77 | 41 | 45 | 42 |
| 7 | 44 | 92 | 122 | 286 | 122 | 129 | 132 | 211 | 103 | 50 | 45 | 41 |
| 8 | 44 | 80 | 112 | 242 | 94 | 129 | 127 | 175 | 116 | 41 | 66 | 41 |
| 9 | 45 | 75 | 114 | 197 | 87 | 127 | 120 | 146 | 88 | 45 | 64 | 44 |
| 10 | 45 | 69 | 112 | 172 | 94 | 116 | 114 | 132 | 78 | 50 | 50 | 40 |
| 11 | 44 | 87 | 118 | 162 | 97 | 120 | 109 | 127 | 72 | 60 | 45 | 39 |
| 12 | 42 | 88 | 120 | 146 | 129 | 228 | 105 | 129 | 141 | 70 | 42 | 38 |
| 13 | 40 | 80 | 120 | 132 | 136 | 197 | 97 | 149 | 85 | 66 | 40 | 37 |
| 14 | 40 | 73 | 112 | 129 | 105 | 180 | 96 | 118 | 75 | 52 | 39 | 34 |
| 15 | 40 | 69 | 105 | 116 | 94 | 156 | 96 | 103 | 69 | 46 | 39 | 34 |
| 16 | 46 | 67 | 101 | 94 | 81 | 141 | 107 | 99 | 66 | 44 | 38 | 36 |
| 17 | 46 | 61 | 99 | 107 | 83 | 139 | 97 | 105 | 64 | 40 | 37 | 34 |
| 18 | 44 | 60 | 94 | 105 | 83 | 129 | 87 | 97 | 60 | 38 | 244 | 34 |
| 19 | 42 | 143 | 114 | 101 | 105 | 116 | 83 | 94 | 55 | 37 | 166 | 34 |
| 20 | 41 | 156 | 139 | 83 | 127 | 112 | 80 | 81 | 51 | 36 | 92 | 34 |
| 21 | 41 | 120 | 326 | 60 | 146 | 105 | 78 | 77 | 50 | 34 | 107 | 34 |
| 22 | 41 | 101 | 437 | 45 | 196 | 101 | 77 | 75 | 48 | 34 | 81 | 33 |
| 23 | 46 | 96 | 294 | 73 | 466 | 167 | 75 | 163 | 48 | 34 | 67 | 34 |
| 24 | 73 | 90 | 242 | 81 | 778 | 214 | 75 | 534 | 47 | 32 | 62 | 34 |
| 25 | 58 | 83 | 492 | 81 | 819 | 192 | 78 | 353 | 47 | 36 | 146 | 34 |
| 26 | 54 | 77 | 312 | 73 | 944 | 167 | 72 | 225 | 45 | 83 | 141 | 33 |
| 27 | 50 | 73 | 259 | 67 | 603 | 154 | 70 | 175 | 42 | 56 | 107 | 33 |
| 28 | 51 | 574 | 220 | 72 | 377 | 144 | 72 | 144 | 41 | 45 | 83 | 33 |
| 29 | 109 | 759 | 194 | 69 | --- | 144 | 70 | 124 | 41 | 40 | 73 | 33 |
| 30 | 80 | 343 | 169 | 64 | --- | 151 | 64 | 112 | 41 | 40 | 66 | 32 |
| 31 | 69 | --- | 194 | 67 | --- | 134 | --- | 105 | --- | 84 | 60 | --- |
| TOTAL | 1670 | 4012 | 5726 | 5075 | 6927 | 4921 | 3007 | 7594 | 2068 | 1455 | 2375 | 1140 |
| MEAN | 53.9 | 134 | 185 | 164 | 247 | 159 | 100 | 245 | 68.9 | 46.9 | 76.6 | 38.0 |
| MAX | 113 | 759 | 492 | 520 | 944 | 290 | 154 | 2290 | 141 | 84 | 244 | 55 |
| MIN | 40 | 52 | 94 | 45 | 81 | 101 | 64 | 62 | 41 | 32 | 37 | 32 |
| CFSM | .49 | 1.22 | 1.68 | 1.49 | 2.25 | 1.45 | .91 | 2.23 | .63 | .43 | .70 | .35 |
| IN. | .56 | 1.36 | 1.94 | 1.72 | 2.34 | 1.66 | 1.02 | 2.57 | .70 | .49 | .80 | .39 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 67706 | MEAN | 185 | MAX | 3030 | MIN | 38 | CFSM | 1.68 | IN. | 22.90 |
| WTR YR 1985 | TOTAL | 45970 | MEAN | 126 | MAX | 2290 | MIN | 32 | CFSM | 1.15 | IN. | 15.55 |

## 02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA

**LOCATION.**--Lat 37°47'30", long 79°45'35", Alleghany County, Hydrologic Unit 02080201, on left bank 100 ft downstream from bridge on State Highway 633, 2.5 mi upstream from confluence with Jackson River, and 4.0 mi southeast of Clifton Forge.

**DRAINAGE AREA.**--461 mi².

**PERIOD OF RECORD.**--March 1925 to current year. Records for May 1907 to August 1908, published in WSP 242, are unreliable and should not be used.

**REVISED RECORDS.**--WSP 952: 1925-41. WSP 2104: Drainage area. See also PERIOD OF RECORD.

**GAGE.**--Water-stage recorder. Datum of gage is 1,006.93 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft upstream at present datum.

**REMARKS.**--Estimated daily discharges: Jan. 22-24, 26, 27, 30. Records good except those for periods with ice effect, Jan. 22-24, 26, 27, 30, which are fair. Low flow affected by springs and by occasional regulation from unknown source. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--60 years, 527 ft³/s, 15.52 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 34,200 ft³/s, Mar. 18, 1936, gage height, 18.62 ft, from rating curve extended above 13,000 ft³/s on basis of slope-area measurement at gage height 15.70 ft; minimum, 38 ft³/s, Sept. 2, 1932; minimum daily, 40 ft³/s, Sept. 1, 1932; minimum gage height, 1.43 ft, Jan. 31, 1981, result of freezeup.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in March 1913 reached a stage of 20.8 ft, from floodmarks, discharge, about 45,000 ft³/s, from rating curve extended above 13,000 ft³/s on basis of records for other stations in James River basin.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 5,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 1130 | *5,810 | *7.86 | May 3 | 2100 | 5,340 | 7.56 |

Minimum discharge, 72 ft³/s, Jan. 21, result of freezeup.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 240 | 293 | 1150 | 741 | 999 | 1100 | 503 | 211 | 315 | 126 | 207 | 162 |
| 2 | 331 | 249 | 812 | 807 | 2870 | 901 | 525 | 222 | 282 | 154 | 267 | 148 |
| 3 | 253 | 219 | 632 | 1540 | 1780 | 746 | 496 | 1880 | 252 | 150 | 294 | 138 |
| 4 | 184 | 205 | 539 | 2530 | 1040 | 624 | 474 | 2640 | 233 | 132 | 192 | 129 |
| 5 | 155 | 311 | 468 | 2100 | 785 | 565 | 440 | 1270 | 227 | 117 | 148 | 122 |
| 6 | 139 | 539 | 489 | 1560 | 674 | 513 | 416 | 878 | 224 | 112 | 128 | 117 |
| 7 | 130 | 437 | 504 | 1170 | 600 | 447 | 416 | 682 | 223 | 113 | 121 | 111 |
| 8 | 124 | 351 | 428 | 973 | 497 | 411 | 381 | 552 | 280 | 111 | 137 | 107 |
| 9 | 124 | 301 | 402 | 786 | 385 | 408 | 361 | 460 | 285 | 109 | 181 | 104 |
| 10 | 124 | 270 | 400 | 642 | 413 | 387 | 340 | 397 | 235 | 104 | 236 | 101 |
| 11 | 119 | 274 | 414 | 570 | 391 | 371 | 326 | 357 | 210 | 118 | 171 | 104 |
| 12 | 116 | 305 | 443 | 520 | 1320 | 476 | 311 | 359 | 197 | 123 | 142 | 99 |
| 13 | 112 | 296 | 450 | 452 | 1500 | 641 | 297 | 468 | 253 | 136 | 126 | 92 |
| 14 | 108 | 265 | 435 | 420 | 828 | 592 | 284 | 450 | 206 | 168 | 118 | 88 |
| 15 | 107 | 244 | 402 | 404 | 614 | 544 | 270 | 350 | 184 | 168 | 109 | 86 |
| 16 | 114 | 229 | 375 | 343 | 500 | 486 | 307 | 317 | 178 | 130 | 104 | 87 |
| 17 | 120 | 215 | 355 | 338 | 440 | 449 | 311 | 351 | 175 | 111 | 106 | 85 |
| 18 | 132 | 206 | 339 | 344 | 419 | 427 | 283 | 329 | 176 | 101 | 911 | 84 |
| 19 | 128 | 315 | 329 | 326 | 395 | 393 | 261 | 294 | 166 | 93 | 2260 | 82 |
| 20 | 121 | 798 | 363 | 284 | 442 | 360 | 248 | 267 | 151 | 89 | 778 | 81 |
| 21 | 119 | 617 | 463 | 164 | 484 | 339 | 241 | 241 | 140 | 88 | 523 | 80 |
| 22 | 116 | 479 | 1180 | 150 | 532 | 327 | 234 | 228 | 132 | 87 | 400 | 81 |
| 23 | 204 | 401 | 1210 | 250 | 770 | 371 | 229 | 256 | 127 | 83 | 309 | 81 |
| 24 | 321 | 356 | 922 | 310 | 1400 | 505 | 231 | 1360 | 123 | 83 | 243 | 81 |
| 25 | 286 | 322 | 994 | 296 | 1910 | 621 | 299 | 2140 | 118 | 109 | 246 | 79 |
| 26 | 246 | 290 | 1180 | 280 | 2330 | 578 | 278 | 1110 | 112 | 168 | 328 | 78 |
| 27 | 205 | 264 | 937 | 260 | 2280 | 521 | 253 | 737 | 107 | 207 | 358 | 76 |
| 28 | 183 | 996 | 785 | 252 | 1510 | 490 | 245 | 563 | 105 | 182 | 293 | 76 |
| 29 | 620 | 4540 | 669 | 252 | --- | 475 | 237 | 459 | 103 | 134 | 234 | 75 |
| 30 | 537 | 1960 | 581 | 240 | --- | 518 | 223 | 390 | 105 | 115 | 198 | 74 |
| 31 | 373 | --- | 594 | 234 | --- | 498 | --- | 344 | --- | 112 | 176 | --- |
| TOTAL | 6191 | 16547 | 19244 | 19538 | 28108 | 16084 | 9728 | 20562 | 5624 | 3833 | 10044 | 2908 |
| MEAN | 200 | 552 | 621 | 630 | 1004 | 519 | 324 | 663 | 187 | 124 | 324 | 96.9 |
| MAX | 620 | 4540 | 1210 | 2530 | 2870 | 1100 | 525 | 2640 | 315 | 207 | 2260 | 162 |
| MIN | 107 | 205 | 329 | 150 | 385 | 327 | 223 | 211 | 103 | 83 | 104 | 74 |
| CFSM | .43 | 1.20 | 1.35 | 1.37 | 2.18 | 1.13 | .70 | 1.44 | .41 | .27 | .70 | .21 |
| IN. | .50 | 1.34 | 1.55 | 1.58 | 2.27 | 1.30 | .78 | 1.66 | .45 | .31 | .81 | .23 |

CAL YR 1984 TOTAL 256026 MEAN 700 MAX 9330 MIN 97 CFSM 1.52 IN. 20.66
WTR YR 1985 TOTAL 158411 MEAN 434 MAX 4540 MIN 74 CFSM .94 IN. 12.78

## 02016500 JAMES RIVER AT LICK RUN, VA

**LOCATION.**--Lat 37°46'25", long 79°47'05", Botetourt County, Hydrologic Unit 02080201, on right bank at community of Lick Run, 1,000 ft downstream from bridge on U.S. Highway 220, 0.9 mi downstream from confluence of Cowpasture and Jackson Rivers, 1.8 mi south of Iron Gate, and at mile 342.3.

**DRAINAGE AREA.**--1,373 mi$^2$.

**PERIOD OF RECORD.**--April 1925 to current year.

**REVISED RECORDS.**--WSP 852: 1936-37. WSP 972: 1927, 1930(M), 1932(M), 1935-36. WSP 1303: 1927-28(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 978.30 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 21-24. Records good except those for period with ice effect, Jan. 21-24, which are fair. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 43.7 mi upstream from station; since October 1984 by Back Creek Lake 71.7 mi upstream; and since January 1985 by Little Back Creek Lake 74.8 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--60 years, 1,612 ft$^3$/s, 15.94 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 66,600 ft$^3$/s, Mar. 18, 1936; maximum gage height, 27.01 ft, June 21, 1972; minimum discharge, 133 ft$^3$/s, Jan. 6, 1981, result of freezeup; minimum daily, 156 ft$^3$/s, Oct. 12, 1930.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in November 1877 reached a stage of about 33 ft, discharge, about 120,000 ft$^3$/s. Flood in March 1913 reached a stage of 30.4 ft, from floodmarks, discharge, about 98,000 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 11,300 ft$^3$/s, Aug. 19, gage height, 9.99 ft; minimum, 431 ft$^3$/s, Sept. 30, gage height, 1.98 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 964 | 924 | 3120 | 2140 | 3880 | 3490 | 1660 | 854 | 985 | 597 | 668 | 662 |
| 2 | 1050 | 823 | 2230 | 2200 | 10200 | 2900 | 1640 | 824 | 907 | 645 | 794 | 629 |
| 3 | 750 | 686 | 1790 | 3950 | 6650 | 2460 | 1580 | 2470 | 854 | 649 | 824 | 608 |
| 4 | 620 | 656 | 1560 | 6710 | 4300 | 2130 | 1540 | 6050 | 807 | 586 | 664 | 586 |
| 5 | 540 | 820 | 1350 | 5950 | 3330 | 1760 | 1480 | 2860 | 798 | 559 | 595 | 567 |
| 6 | 530 | 1130 | 1380 | 5540 | 2380 | 1590 | 1480 | 2320 | 812 | 547 | 560 | 553 |
| 7 | 510 | 994 | 1350 | 3540 | 2160 | 1430 | 1490 | 1610 | 781 | 544 | 549 | 542 |
| 8 | 490 | 872 | 1210 | 3060 | 1840 | 1360 | 1430 | 1350 | 843 | 526 | 597 | 537 |
| 9 | 490 | 791 | 1170 | 2430 | 1340 | 1360 | 1270 | 1170 | 840 | 522 | 748 | 527 |
| 10 | 485 | 740 | 1170 | 1910 | 1320 | 1320 | 1210 | 1140 | 763 | 526 | 800 | 513 |
| 11 | 461 | 778 | 1210 | 1740 | 1280 | 1310 | 1190 | 958 | 718 | 592 | 646 | 512 |
| 12 | 457 | 832 | 1320 | 1610 | 3090 | 1650 | 1160 | 971 | 708 | 563 | 584 | 503 |
| 13 | 448 | 823 | 1370 | 1340 | 3800 | 2190 | 1090 | 1190 | 758 | 571 | 549 | 492 |
| 14 | 441 | 759 | 1310 | 1260 | 2500 | 2620 | 1110 | 1240 | 699 | 628 | 530 | 481 |
| 15 | 637 | 713 | 1230 | 1210 | 1780 | 2040 | 1110 | 1140 | 659 | 636 | 507 | 479 |
| 16 | 834 | 682 | 1170 | 1040 | 1520 | 1600 | 1280 | 1190 | 656 | 564 | 509 | 477 |
| 17 | 587 | 653 | 1120 | 1090 | 1400 | 1510 | 1490 | 1160 | 660 | 525 | 533 | 469 |
| 18 | 553 | 641 | 1090 | 1080 | 1320 | 1460 | 1410 | 1120 | 667 | 504 | 3110 | 463 |
| 19 | 532 | 861 | 1060 | 1040 | 1110 | 1370 | 1340 | 831 | 642 | 491 | 6280 | 461 |
| 20 | 480 | 1890 | 1070 | 955 | 1150 | 1300 | 1270 | 757 | 612 | 477 | 2360 | 457 |
| 21 | 476 | 1500 | 1240 | 670 | 1290 | 1250 | 1210 | 717 | 585 | 472 | 1710 | 457 |
| 22 | 457 | 1220 | 2550 | 600 | 1440 | 1240 | 1090 | 709 | 570 | 473 | 1310 | 460 |
| 23 | 674 | 1050 | 2720 | 740 | 2180 | 1500 | 1030 | 779 | 548 | 474 | 1080 | 462 |
| 24 | 1060 | 961 | 2370 | 920 | 3450 | 2000 | 1020 | 2600 | 546 | 466 | 934 | 455 |
| 25 | 907 | 891 | 2570 | 879 | 4910 | 2140 | 1280 | 7190 | 536 | 532 | 932 | 450 |
| 26 | 803 | 822 | 3150 | 732 | 7330 | 2170 | 1160 | 3790 | 521 | 705 | 1020 | 448 |
| 27 | 710 | 757 | 2790 | 625 | 6830 | 1860 | 1070 | 2770 | 508 | 779 | 1090 | 449 |
| 28 | 665 | 2220 | 2660 | 672 | 5380 | 1790 | 1040 | 1960 | 499 | 725 | 950 | 444 |
| 29 | 1420 | 7710 | 2010 | 646 | --- | 1730 | 996 | 1580 | 497 | 617 | 837 | 443 |
| 30 | 1300 | 4000 | 1820 | 604 | --- | 1710 | 909 | 1300 | 505 | 562 | 764 | 439 |
| 31 | 1010 | --- | 1730 | 685 | --- | 1640 | --- | 1070 | --- | 564 | 703 | --- |
| TOTAL | 21341 | 38199 | 53890 | 57568 | 89160 | 55880 | 38035 | 55670 | 20484 | 17621 | 33737 | 15025 |
| MEAN | 688 | 1273 | 1738 | 1857 | 3184 | 1803 | 1268 | 1796 | 683 | 568 | 1088 | 501 |
| MAX | 1420 | 7710 | 3150 | 6710 | 10200 | 3490 | 1660 | 7190 | 985 | 779 | 6280 | 662 |
| MIN | 441 | 641 | 1060 | 600 | 1110 | 1240 | 909 | 709 | 497 | 466 | 507 | 439 |
| (*) | -46 | +277 | +166 | +78 | +126 | +3 | -3 | +8 | -72 | -158 | -122 | -188 |
| MEAN† | 642 | 1550 | 1904 | 1935 | 3310 | 1806 | 1265 | 1804 | 611 | 410 | 966 | 313 |
| CFSM† | .47 | 1.13 | 1.39 | 1.41 | 2.41 | 1.32 | .92 | 1.31 | .45 | .30 | .70 | .23 |
| IN.† | .54 | 1.26 | 1.60 | 1.63 | 2.51 | 1.52 | 1.03 | 1.52 | .50 | .34 | .81 | .25 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 791685 | MEAN | 2163 | MAX | 20500 | MIN | 441 | MEAN† | 2184 | CFSM† 1.59 | IN.† 21.66 |
| WTR YR 1985 | TOTAL | 496610 | MEAN | 1361 | MAX | 10200 | MIN | 439 | MEAN† | 1366 | CFSM† .99 | IN.† 13.51 |

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02017500 JOHNS CREEK AT NEW CASTLE, VA

LOCATION.--Lat 37°30'22", long 80°06'25", Craig County, Hydrologic Unit 02080201, on right bank 20 ft downstream from bridge on State Highway 615 at New Castle and 1,700 ft upstream from mouth.

DRAINAGE AREA.--104 mi².

PERIOD OF RECORD.--April 1926 to current year.

REVISED RECORDS.--WSP 972: 1935-36(M), 1940(M). WSP 1203: 1928, 1935. WSP 1303: 1927(M), 1928, 1929-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.30 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 8, Jan. 16, 21-23, and Feb. 9-11. Records good except those for periods with ice effect, Dec. 8, Jan. 16, 21-23, and Feb. 9-11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--59 years, 127 ft³/s, 16.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s, Jan. 23, 1935, from rating curve extended above 3,200 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 12.48 ft, June 21, 1972; minimum discharge, 6.0 ft³/s, Dec. 5, 1946, result of freezeup; minimum daily, 6.6 ft³/s, Oct. 1, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,100 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1700 | *1,940 | *8.28 | No peak equal to or greater than base discharge. | | | |

Minimum discharge, 8.8 ft³/s, July 24, gage height, 2.65 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 46 | 25 | 95 | 173 | 704 | 240 | 121 | 57 | 77 | 20 | 48 | 41 |
| 2 | 29 | 24 | 76 | 183 | 975 | 212 | 107 | 57 | 64 | 23 | 101 | 37 |
| 3 | 21 | 22 | 67 | 334 | 645 | 178 | 99 | 63 | 57 | 21 | 89 | 33 |
| 4 | 19 | 23 | 59 | 700 | 472 | 157 | 92 | 57 | 50 | 19 | 68 | 29 |
| 5 | 18 | 30 | 54 | 517 | 384 | 141 | 87 | 51 | 46 | 19 | 52 | 26 |
| 6 | 16 | 30 | 62 | 361 | 328 | 121 | 106 | 48 | 49 | 20 | 40 | 26 |
| 7 | 16 | 28 | 61 | 306 | 272 | 106 | 109 | 44 | 53 | 18 | 34 | 25 |
| 8 | 16 | 27 | 59 | 259 | 218 | 99 | 105 | 41 | 54 | 16 | 61 | 23 |
| 9 | 17 | 26 | 58 | 209 | 170 | 102 | 102 | 38 | 46 | 14 | 76 | 21 |
| 10 | 18 | 26 | 64 | 180 | 146 | 95 | 98 | 39 | 39 | 13 | 59 | 19 |
| 11 | 17 | 32 | 81 | 160 | 130 | 99 | 93 | 60 | 38 | 13 | 46 | 18 |
| 12 | 16 | 35 | 95 | 137 | 199 | 113 | 89 | 59 | 48 | 13 | 36 | 18 |
| 13 | 15 | 33 | 93 | 126 | 188 | 109 | 85 | 53 | 40 | 15 | 29 | 18 |
| 14 | 15 | 32 | 85 | 110 | 156 | 108 | 83 | 49 | 34 | 19 | 24 | 18 |
| 15 | 15 | 31 | 76 | 100 | 138 | 105 | 82 | 46 | 30 | 18 | 21 | 17 |
| 16 | 16 | 30 | 69 | 83 | 123 | 98 | 196 | 54 | 30 | 16 | 24 | 16 |
| 17 | 16 | 28 | 64 | 87 | 115 | 95 | 189 | 53 | 34 | 14 | 60 | 15 |
| 18 | 16 | 28 | 61 | 79 | 106 | 91 | 173 | 52 | 31 | 12 | 1180 | 14 |
| 19 | 16 | 56 | 59 | 74 | 111 | 84 | 162 | 52 | 27 | 11 | 638 | 13 |
| 20 | 16 | 70 | 57 | 70 | 122 | 78 | 149 | 49 | 24 | 11 | 377 | 13 |
| 21 | 16 | 60 | 66 | 60 | 126 | 74 | 134 | 45 | 22 | 9.9 | 297 | 12 |
| 22 | 18 | 53 | 103 | 52 | 141 | 78 | 120 | 44 | 20 | 9.5 | 253 | 12 |
| 23 | 34 | 48 | 112 | 60 | 169 | 246 | 108 | 53 | 18 | 9.4 | 224 | 12 |
| 24 | 67 | 45 | 111 | 61 | 187 | 257 | 100 | 300 | 17 | 9.2 | 190 | 12 |
| 25 | 36 | 42 | 115 | 61 | 202 | 219 | 97 | 443 | 16 | 13 | 187 | 12 |
| 26 | 31 | 39 | 109 | 55 | 319 | 192 | 86 | 288 | 15 | 22 | 165 | 12 |
| 27 | 29 | 37 | 106 | 48 | 323 | 175 | 78 | 208 | 14 | 25 | 116 | 12 |
| 28 | 27 | 93 | 102 | 50 | 274 | 163 | 74 | 163 | 14 | 31 | 86 | 11 |
| 29 | 28 | 148 | 95 | 49 | --- | 149 | 68 | 133 | 14 | 24 | 68 | 12 |
| 30 | 27 | 114 | 88 | 48 | --- | 134 | 62 | 109 | 15 | 21 | 55 | 12 |
| 31 | 26 | --- | 131 | 69 | --- | 121 | --- | 93 | --- | 28 | 48 | --- |
| TOTAL | 713 | 1315 | 2533 | 4861 | 7443 | 4239 | 3254 | 2901 | 1036 | 527.0 | 4752 | 559 |
| MEAN | 23.0 | 43.8 | 81.7 | 157 | 266 | 137 | 108 | 93.6 | 34.5 | 17.0 | 153 | 18.6 |
| MAX | 67 | 148 | 131 | 700 | 975 | 257 | 196 | 443 | 77 | 31 | 1180 | 41 |
| MIN | 15 | 22 | 54 | 48 | 106 | 74 | 62 | 38 | 14 | 9.2 | 21 | 11 |
| CFSM | .22 | .42 | .79 | 1.51 | 2.56 | 1.32 | 1.04 | .90 | .33 | .16 | 1.47 | .18 |
| IN. | .26 | .47 | .91 | 1.74 | 2.66 | 1.52 | 1.16 | 1.04 | .37 | .19 | 1.70 | .20 |

CAL YR 1984 TOTAL 56331 MEAN 154 MAX 1560 MIN 11 CFSM 1.48 IN. 20.15
WTR YR 1985 TOTAL 34133.0 MEAN 93.5 MAX 1180 MIN 9.2 CFSM .90 IN. 12.21

## 02018000 CRAIG CREEK AT PARR, VA

LOCATION.--Lat 37°39'57", long 79°54'42", Botetourt County, Hydrologic Unit 02080201, on right bank 12 ft upstream from Chesapeake and Ohio Railway bridge, 700 ft downstream from Stony Run, 0.2 mi northeast of Horton, 0.4 mi northwest of Parr, and 12 mi upstream from mouth.

DRAINAGE AREA.--329 mi$^2$.

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1935-36. WSP 1303: 1929-30(M), 1932-35(M), 1937-38(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 992.50 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 20-24 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 20-24 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--60 years, 385 ft$^3$/s, 15.89 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft$^3$/s, June 21, 1972, gage height, 19.29 ft, from high-water mark in well; minimum, 20 ft$^3$/s, probably occurred Dec. 21, 25, 1980, or Jan. 4, 1981, gage height, 3.20 ft, result of freezeup; minimum daily, 25 ft$^3$/s, Sept. 4, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,200 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0230 | *7,400 | *11.06 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 41 ft$^3$/s, July 24-25, gage height, 3.39 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 87 | 87 | 396 | 416 | 868 | 692 | 312 | 191 | 248 | 59 | 90 | 127 |
| 2 | 137 | 84 | 320 | 472 | 3260 | 605 | 292 | 188 | 207 | 66 | 136 | 113 |
| 3 | 102 | 81 | 269 | 615 | 2440 | 525 | 266 | 198 | 179 | 70 | 223 | 103 |
| 4 | 82 | 82 | 241 | 2120 | 1370 | 440 | 251 | 198 | 159 | 70 | 176 | 94 |
| 5 | 75 | 97 | 217 | 1720 | 969 | 400 | 237 | 176 | 146 | 66 | 134 | 86 |
| 6 | 72 | 106 | 230 | 1090 | 800 | 360 | 237 | 162 | 134 | 62 | 105 | 80 |
| 7 | 68 | 108 | 237 | 824 | 656 | 320 | 266 | 151 | 141 | 61 | 89 | 76 |
| 8 | 68 | 104 | 210 | 680 | 530 | 288 | 258 | 141 | 146 | 60 | 89 | 76 |
| 9 | 68 | 97 | 204 | 561 | 420 | 284 | 244 | 129 | 144 | 58 | 105 | 71 |
| 10 | 69 | 95 | 207 | 476 | 400 | 273 | 237 | 123 | 121 | 54 | 155 | 68 |
| 11 | 69 | 97 | 227 | 428 | 392 | 258 | 227 | 132 | 108 | 52 | 112 | 65 |
| 12 | 69 | 102 | 262 | 384 | 1010 | 288 | 220 | 168 | 114 | 50 | 91 | 63 |
| 13 | 68 | 106 | 276 | 328 | 1080 | 280 | 217 | 244 | 129 | 50 | 77 | 61 |
| 14 | 66 | 102 | 258 | 312 | 626 | 269 | 207 | 176 | 110 | 51 | 68 | 61 |
| 15 | 64 | 99 | 234 | 284 | 525 | 262 | 207 | 151 | 101 | 58 | 61 | 60 |
| 16 | 64 | 97 | 217 | 237 | 448 | 248 | 281 | 151 | 99 | 63 | 61 | 59 |
| 17 | 64 | 95 | 201 | 248 | 408 | 237 | 595 | 198 | 95 | 58 | 64 | 58 |
| 18 | 66 | 95 | 188 | 234 | 376 | 230 | 520 | 188 | 101 | 52 | 1970 | 56 |
| 19 | 67 | 106 | 179 | 220 | 360 | 224 | 468 | 171 | 99 | 48 | 3910 | 53 |
| 20 | 67 | 192 | 173 | 207 | 372 | 207 | 416 | 154 | 80 | 46 | 1050 | 52 |
| 21 | 66 | 207 | 182 | 150 | 392 | 198 | 380 | 139 | 74 | 45 | 693 | 51 |
| 22 | 68 | 179 | 234 | 144 | 428 | 198 | 340 | 132 | 70 | 45 | 541 | 51 |
| 23 | 85 | 159 | 288 | 170 | 512 | 324 | 312 | 134 | 67 | 42 | 450 | 51 |
| 24 | 165 | 149 | 296 | 220 | 585 | 605 | 284 | 1070 | 64 | 43 | 388 | 50 |
| 25 | 173 | 139 | 300 | 237 | 632 | 585 | 308 | 2490 | 61 | 50 | 353 | 50 |
| 26 | 123 | 127 | 292 | 210 | 818 | 512 | 296 | 1140 | 59 | 65 | 369 | 48 |
| 27 | 108 | 121 | 273 | 185 | 1030 | 440 | 262 | 701 | 54 | 88 | 305 | 47 |
| 28 | 101 | 371 | 262 | 173 | 830 | 412 | 251 | 512 | 53 | 109 | 245 | 47 |
| 29 | 97 | 935 | 251 | 151 | --- | 384 | 234 | 412 | 51 | 116 | 199 | 47 |
| 30 | 95 | 507 | 237 | 132 | --- | 352 | 210 | 336 | 52 | 84 | 166 | 46 |
| 31 | 90 | --- | 262 | 157 | --- | 320 | --- | 288 | --- | 73 | 142 | --- |
| TOTAL | 2663 | 4926 | 7623 | 13785 | 22537 | 11020 | 8835 | 10744 | 3266 | 1914 | 12617 | 1970 |
| MEAN | 85.9 | 164 | 246 | 445 | 805 | 355 | 295 | 347 | 109 | 61.7 | 407 | 65.7 |
| MAX | 173 | 935 | 396 | 2120 | 3260 | 692 | 595 | 2490 | 248 | 116 | 3910 | 127 |
| MIN | 64 | 81 | 173 | 132 | 360 | 198 | 207 | 123 | 51 | 42 | 61 | 46 |
| CFSM | .26 | .50 | .75 | 1.35 | 2.45 | 1.08 | .90 | 1.05 | .33 | .19 | 1.24 | .20 |
| IN. | .30 | .56 | .86 | 1.56 | 2.55 | 1.25 | 1.00 | 1.21 | .37 | .22 | 1.43 | .22 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 162945 | MEAN | 445 | MAX | 5190 | MIN | 55 | CFSM | 1.35 | IN. | 18.42 |
| WTR YR 1985 | TOTAL | 101900 | MEAN | 279 | MAX | 3910 | MIN | 42 | CFSM | .85 | IN. | 11.52 |

## 02018500 CATAWBA CREEK NEAR CATAWBA, VA

LOCATION.--Lat 37°28'05", long 80°00'20", Botetourt County, Hydrologic Unit 02080201, on right bank 80 ft upstream from bridge on State Highway 779, 1.0 mi downstream from Little Catawba Creek, 1.9 mi west of Haymakertown, and 8.2 mi northeast of Catawba.

DRAINAGE AREA.--34.3 mi².

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1303: 1944-45(M). WSP 2104: Drainage area. WDR VA-72-1: 1954, 1955(P), 1957-58(P), 1959, 1960-62(P), 1963, 1964(M), 1965-67(P), 1968(M), 1969, 1970(M), 1971.

GAGE.--Water-stage recorder. Datum of gage is 1,299.96 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 16, 17, 23-29, and Feb. 10. Records good except those for periods with ice effect, Jan. 16, 17, 23-29, and Feb. 10, which are fair. At a point 5.3 mi upstream from station, there is transmountain diversion through a tunnel into Roanoke River basin for municipal water supply of city of Roanoke since December 1974. Prior to October 1976, monthly means adjusted for pumpage by Citadel Cement Corporation. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 35.8 ft³/s, 14.17 in/yr, adjusted for pumpage from October 1952 to September 1976, and transmountain diversion since December 1974.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft³/s, June 21, 1972, gage height, 10.35 ft, from rating curve extended above 1,100 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.33 ft³/s, Aug. 16, 1983, result of pumpage; minimum daily, 0.67 ft³/s, Aug. 14, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.26 ft, from information by observer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,870 ft³/s, Aug. 18, gage height, 6.69 ft; minimum, 4.0 ft³/s, Oct. 19, Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 4.9 | 19 | 14 | 60 | 42 | 15 | 11 | 29 | 9.3 | 11 | 16 |
| 2 | 9.1 | 4.5 | 15 | 14 | 129 | 38 | 14 | 11 | 26 | 8.4 | 13 | 13 |
| 3 | 6.5 | 4.4 | 14 | 28 | 123 | 33 | 14 | 11 | 24 | 8.0 | 9.7 | 10 |
| 4 | 5.6 | 7.0 | 13 | 49 | 73 | 29 | 14 | 9.8 | 22 | 11 | 8.2 | 8.9 |
| 5 | 5.2 | 11 | 11 | 34 | 54 | 28 | 14 | 9.2 | 22 | 8.7 | 7.3 | 7.9 |
| 6 | 5.0 | 7.6 | 13 | 25 | 45 | 25 | 14 | 8.7 | 22 | 9.2 | 7.4 | 8.0 |
| 7 | 4.7 | 6.4 | 10 | 22 | 37 | 23 | 13 | 8.6 | 23 | 8.1 | 7.3 | 6.9 |
| 8 | 4.8 | 5.8 | 10 | 18 | 30 | 22 | 13 | 8.3 | 21 | 6.8 | 6.7 | 6.5 |
| 9 | 5.1 | 5.6 | 9.8 | 15 | 26 | 21 | 13 | 7.7 | 18 | 6.4 | 6.4 | 6.1 |
| 10 | 4.8 | 5.0 | 9.7 | 14 | 22 | 20 | 12 | 8.0 | 16 | 8.5 | 5.7 | 5.9 |
| 11 | 4.6 | 5.9 | 10 | 13 | 24 | 20 | 12 | 8.6 | 18 | 8.1 | 5.0 | 7.5 |
| 12 | 4.6 | 5.7 | 10 | 10 | 195 | 20 | 12 | 8.4 | 14 | 6.7 | 4.9 | 14 |
| 13 | 4.6 | 5.1 | 9.9 | 9.5 | 91 | 18 | 12 | 8.3 | 11 | 7.5 | 4.9 | 12 |
| 14 | 4.5 | 4.7 | 9.3 | 9.2 | 55 | 17 | 11 | 7.7 | 10 | 7.2 | 4.7 | 11 |
| 15 | 4.5 | 4.7 | 8.7 | 8.2 | 43 | 16 | 11 | 7.2 | 9.7 | 8.0 | 4.4 | 11 |
| 16 | 4.6 | 4.7 | 8.6 | 7.5 | 36 | 16 | 17 | 8.9 | 10 | 7.1 | 4.5 | 10 |
| 17 | 4.6 | 4.5 | 8.2 | 9.0 | 31 | 15 | 18 | 9.3 | 9.6 | 6.6 | 9.2 | 9.9 |
| 18 | 4.6 | 4.7 | 7.9 | 9.3 | 29 | 14 | 16 | 8.5 | 8.9 | 6.4 | 1250 | 9.6 |
| 19 | 4.5 | 9.8 | 8.6 | 9.0 | 30 | 14 | 15 | 7.2 | 8.4 | 5.8 | 238 | 9.2 |
| 20 | 4.5 | 8.8 | 7.6 | 7.3 | 34 | 12 | 14 | 6.5 | 8.1 | 5.5 | 121 | 9.2 |
| 21 | 4.4 | 7.7 | 9.5 | 4.5 | 31 | 7.9 | 14 | 6.3 | 7.9 | 5.4 | 88 | 8.9 |
| 22 | 6.8 | 6.8 | 11 | 5.4 | 29 | 9.9 | 13 | 6.7 | 7.7 | 5.2 | 49 | 8.6 |
| 23 | 9.7 | 6.4 | 11 | 5.0 | 31 | 18 | 14 | 20 | 7.5 | 5.1 | 36 | 8.5 |
| 24 | 8.9 | 6.7 | 11 | 4.7 | 34 | 20 | 14 | 495 | 7.4 | 5.3 | 30 | 8.3 |
| 25 | 7.1 | 5.9 | 11 | 4.5 | 37 | 19 | 15 | 287 | 7.1 | 16 | 132 | 7.9 |
| 26 | 5.9 | 5.5 | 9.8 | 4.6 | 74 | 16 | 14 | 128 | 6.9 | 12 | 101 | 7.8 |
| 27 | 5.2 | 5.3 | 9.2 | 4.7 | 63 | 15 | 12 | 77 | 6.7 | 21 | 59 | 7.8 |
| 28 | 4.9 | 67 | 8.6 | 4.8 | 50 | 15 | 12 | 55 | 6.8 | 14 | 40 | 7.3 |
| 29 | 5.7 | 36 | 8.4 | 5.0 | --- | 15 | 12 | 43 | 6.6 | 11 | 31 | 7.3 |
| 30 | 5.0 | 24 | 8.6 | 5.5 | --- | 15 | 11 | 36 | 7.7 | 8.7 | 25 | 7.2 |
| 31 | 4.9 | --- | 13 | 11 | --- | 15 | --- | 32 | --- | 7.5 | 20 | --- |
| TOTAL | 180.9 | 292.1 | 324.4 | 384.7 | 1516 | 608.8 | 405 | 1359.9 | 403.0 | 264.5 | 2340.3 | 272.2 |
| MEAN | 5.84 | 9.74 | 10.5 | 12.4 | 54.1 | 19.6 | 13.5 | 43.9 | 13.4 | 8.53 | 75.5 | 9.07 |
| MAX | 16 | 67 | 19 | 49 | 195 | 42 | 18 | 495 | 29 | 21 | 1250 | 16 |
| MIN | 4.4 | 4.4 | 7.6 | 4.5 | 22 | 7.9 | 11 | 6.3 | 6.6 | 5.1 | 4.4 | 5.9 |
| (*) | 0 | 1.3 | .90 | 4.4 | 9.9 | .20 | .10 | .80 | .40 | 0 | 3.3 | 0 |
| MEAN† | 5.84 | 11.0 | 11.4 | 16.8 | 64.0 | 19.8 | 13.6 | 44.7 | 13.8 | 8.53 | 78.8 | 9.07 |
| CFSM† | .17 | .32 | .33 | .49 | 1.87 | .58 | .40 | 1.30 | .40 | .25 | 2.30 | .26 |
| IN.† | .20 | .36 | .38 | .56 | 1.94 | .67 | .44 | 1.50 | .45 | .29 | 2.65 | .30 |

CAL YR 1984 TOTAL 15575.6 MEAN 42.6 MAX 1050 MIN 4.4 MEAN† 43.0 CFSM† 1.25 IN.† 17.07
WTR YR 1985 TOTAL 8351.8 MEAN 22.9 MAX 1250 MIN 4.4 MEAN† 24.6 CFSM† .72 IN.† 9.74

* Average diversion, equivalent in cubic feet per second, provided by city of Roanoke.
† Adjusted for diversion.

## 02019500 JAMES RIVER AT BUCHANAN, VA

LOCATION.--Lat 37°31'50", long 79°40'45", Botetourt County, Hydrologic Unit 02080201, on left bank at Chesapeake and Ohio Railway station at Buchanan, 300 ft upstream from bridge on U.S. Highway 11, 1,000 ft upstream from Purgatory Creek, 1.5 mi downstream from Looney Creek, and at mile 306.4.
DRAINAGE AREA.--2,075 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for August 1895 to Feb. 11, 1898, published in WSP 11, 15, and 27 are in error and should not be used. Gage-height records collected at this site since 1893 are contained in reports of the National Weather Service.
REVISED RECORDS.--WSP 602: 1917-24. WSP 972: 1935-36. WSP 1303: 1898-1916, 1917-20(M), 1922(M), 1924(M). WSP 1383: 1927. WSP 2104: Drainage area. WDR VA-72-1: 1913(M). See also PERIOD OF RECORD.
GAGE.--Water-stage recorder. Datum of gage is 802.90 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1927, nonrecording gage at same site and datum.
REMARKS.--Estimated daily discharges: Oct. 19-25, July 11-15, and Aug. 16-20. Records good except those for periods of no gage-height record, Oct. 19-25, July 11-15, and Aug. 16-20, which are fair. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 79.6 mi upstream; since October 1984 by Back Creek Lake 107.6 mi upstream; and since January 1985 by Little Back Creek Lake 110.7 mi upstream, amount unknown. National Weather Service gage-height telemeter at station.
AVERAGE DISCHARGE.--87 years, 2,474 ft$^3$/s, 16.19 in/yr, unadjusted.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft$^3$/s, Mar. 27, 1913, gage height, 31 ft, from floodmarks; minimum, 202 ft$^3$/s, Sept. 8, 1966, gage height, 1.44 ft; minimum daily, 207 ft$^3$/s, Sept. 12, 1966.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of 34.9 ft, from floodmark, discharge, about 142,000 ft$^3$/s, from rating curve extended above 110,000 ft$^3$/s.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ft$^3$/s, Feb. 2, gage height, 11.73 ft; minimum, 539 ft$^3$/s, Sept. 29, 30, gage height, 2.28 ft; minimum daily, 544 ft$^3$/s, Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1030 | 1200 | 4310 | 2680 | 3510 | 5410 | 2220 | 1250 | 1530 | 780 | 911 | 997 |
| 2 | 1360 | 1100 | 3330 | 2980 | 16300 | 4330 | 2210 | 1210 | 1390 | 882 | 1110 | 921 |
| 3 | 1250 | 984 | 2600 | 4560 | 13700 | 3660 | 2110 | 1410 | 1270 | 992 | 1250 | 869 |
| 4 | 949 | 899 | 2220 | 10100 | 8020 | 3150 | 2040 | 6540 | 1190 | 897 | 1260 | 826 |
| 5 | 814 | 1040 | 1950 | 9960 | 5900 | 2740 | 1970 | 4140 | 1130 | 937 | 1070 | 785 |
| 6 | 726 | 1320 | 1920 | 8510 | 4510 | 2380 | 1920 | 2960 | 1140 | 811 | 957 | 759 |
| 7 | 702 | 1410 | 1970 | 5860 | 3730 | 2150 | 1950 | 2300 | 1100 | 788 | 904 | 740 |
| 8 | 677 | 1230 | 1820 | 4710 | 3160 | 1990 | 1930 | 1840 | 1130 | 760 | 915 | 722 |
| 9 | 674 | 1100 | 1670 | 3870 | 2490 | 1950 | 1810 | 1560 | 1160 | 747 | 937 | 710 |
| 10 | 674 | 1020 | 1650 | 3100 | 2200 | 1910 | 1670 | 1500 | 1120 | 756 | 1190 | 690 |
| 11 | 660 | 1000 | 1690 | 2670 | 2170 | 1830 | 1620 | 1380 | 1040 | 800 | 1130 | 668 |
| 12 | 639 | 1050 | 1820 | 2450 | 4610 | 1990 | 1580 | 1280 | 1010 | 850 | 961 | 659 |
| 13 | 630 | 1080 | 1950 | 2170 | 7480 | 2550 | 1500 | 1540 | 975 | 880 | 876 | 653 |
| 14 | 620 | 1040 | 1910 | 1910 | 4670 | 3030 | 1500 | 1630 | 1010 | 920 | 821 | 639 |
| 15 | 614 | 978 | 1780 | 1840 | 3340 | 2800 | 1480 | 1560 | 930 | 950 | 780 | 629 |
| 16 | 897 | 935 | 1660 | 1630 | 2680 | 2290 | 1630 | 1500 | 915 | 878 | 780 | 627 |
| 17 | 965 | 894 | 1580 | 1550 | 2370 | 2030 | 2140 | 1700 | 948 | 835 | 900 | 619 |
| 18 | 726 | 863 | 1520 | 1600 | 2200 | 1950 | 2230 | 1620 | 901 | 761 | 4500 | 606 |
| 19 | 710 | 962 | 1470 | 1510 | 1990 | 1860 | 2070 | 1430 | 899 | 740 | 14000 | 600 |
| 20 | 700 | 1770 | 1450 | 1430 | 1850 | 1770 | 1950 | 1140 | 849 | 721 | 5500 | 594 |
| 21 | 720 | 2170 | 1550 | 989 | 1970 | 1690 | 1840 | 1060 | 808 | 704 | 3250 | 585 |
| 22 | 740 | 1740 | 2460 | 855 | 2120 | 1660 | 1700 | 1020 | 778 | 705 | 2430 | 588 |
| 23 | 900 | 1490 | 3380 | 1240 | 2580 | 1850 | 1550 | 1220 | 755 | 706 | 1970 | 591 |
| 24 | 1100 | 1340 | 3100 | 1330 | 3890 | 2670 | 1490 | 3890 | 744 | 702 | 1650 | 586 |
| 25 | 1300 | 1240 | 2950 | 1330 | 5530 | 3110 | 1680 | 12900 | 733 | 755 | 1560 | 568 |
| 26 | 1220 | 1150 | 3650 | 1420 | 8240 | 3060 | 1760 | 7680 | 715 | 1130 | 1760 | 564 |
| 27 | 1050 | 1060 | 3470 | 1060 | 9500 | 2770 | 1580 | 4690 | 691 | 1130 | 1960 | 556 |
| 28 | 952 | 1460 | 3260 | 993 | 7760 | 2550 | 1510 | 3250 | 677 | 1270 | 1620 | 547 |
| 29 | 985 | 9780 | 2810 | 980 | --- | 2430 | 1460 | 2530 | 673 | 1120 | 1370 | 544 |
| 30 | 1870 | 6780 | 2390 | 925 | --- | 2360 | 1360 | 2070 | 687 | 993 | 1190 | 544 |
| 31 | 1400 | --- | 2290 | 996 | --- | 2290 | --- | 1760 | --- | 899 | 1080 | --- |
| TOTAL | 28254 | 50085 | 71580 | 87208 | 138470 | 78210 | 53460 | 81560 | 28898 | 26799 | 60592 | 19986 |
| MEAN | 911 | 1670 | 2309 | 2813 | 4945 | 2523 | 1782 | 2631 | 963 | 864 | 1955 | 666 |
| MAX | 1870 | 9780 | 4310 | 10100 | 16300 | 5410 | 2230 | 12900 | 1530 | 1270 | 14000 | 997 |
| MIN | 614 | 863 | 1450 | 855 | 1850 | 1660 | 1360 | 1020 | 673 | 702 | 780 | 544 |
| (*) | -46 | +277 | +166 | +78 | +126 | +3 | -3 | +8 | -72 | -158 | -122 | -188 |
| MEAN† | 865 | 1946 | 2475 | 2891 | 5071 | 2526 | 1779 | 2639 | 891 | 706 | 1833 | 478 |
| CFSM† | .42 | .94 | 1.19 | 1.39 | 2.44 | 1.22 | .86 | 1.27 | .43 | .34 | .88 | .23 |
| IN.† | .48 | 1.05 | 1.38 | 1.61 | 2.55 | 1.40 | .96 | 1.47 | .48 | .39 | 1.02 | .26 |

CAL YR 1984 TOTAL 1181226 MEAN 3227 MAX 36600 MIN 614 MEAN† 3248 CFSM† 1.57 IN.† 21.31
WTY YR 1985 TOTAL 725102 MEAN 1987 MAX 16300 MIN 544 MEAN† 1992 CFSM† .96 IN.† 13.03

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.
† Adjusted for change in contents.

## 02019500 JAMES RIVER AT BUCHANAN, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1951-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to current year.
WATER TEMPERATURE: October 1947 to September 1948, May 1951 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1951 to September 1956.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 945 microsiemens, Sept. 27, 1954; minimum daily, 67 microsiemens, Oct. 20, 1975, Oct. 10, 1976.
WATER TEMPERATURE: Maximum daily, 31°C, July 5, 1955, July 17, 21, 1980; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 540 microsiemens, Sept. 19; minimum daily, 100 microsiemens, Feb. 3, Aug. 19.
WATER TEMPERATURE: Maximum daily, 28.5°C, July 21, Aug. 14, 15; minimum daily, 0.0°C, Jan. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 05... | 11:15 | 814 | 305 | 305 | 7.7 | 7.7 | 16.0 | 750 | 7 | 9.2 |
| NOV | | | | | | | | | | |
| 15... | 12:35 | 975 | 325 | 308 | 8.0 | 8.0 | 8.5 | 745 | 10 | 11.8 |
| JAN | | | | | | | | | | |
| 09... | 08:15 | 4040 | 160 | 164 | 7.4 | 7.4 | 4.0 | 748 | 5 | 12.3 |
| FEB | | | | | | | | | | |
| 15... | 09:45 | 3440 | 160 | 163 | 7.1 | 7.0 | 1.5 | 742 | 5 | 13.2 |
| APR | | | | | | | | | | |
| 09... | 08:15 | 1880 | 220 | 229 | 7.5 | 7.6 | 9.0 | 745 | 15 | 11.0 |
| MAY | | | | | | | | | | |
| 15... | 08:00 | 1590 | 248 | 240 | 7.6 | 7.3 | 21.5 | 741 | 20 | 7.8 |
| JUL | | | | | | | | | | |
| 03... | 08:15 | 1040 | 400 | 408 | 8.0 | 7.9 | 21.0 | 742 | 20 | 6.9 |
| AUG | | | | | | | | | | |
| 21... | 15:15 | 3110 | 170 | 169 | 7.6 | 7.1 | 22.0 | 742 | 20 | 8.5 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 05... | 95 | 120 | 117 | 36 | 6.7 | 14 | 2.4 | 92 | 24 |
| NOV | | | | | | | | | |
| 15... | 103 | 110 | 112 | 35 | 5.9 | 20 | 2.2 | 81 | 26 |
| JAN | | | | | | | | | |
| 09... | 96 | 65 | 65 | 20 | 3.6 | 5.8 | 1.1 | 50 | 16 |
| FEB | | | | | | | | | |
| 15... | 97 | 64 | 64 | 19 | 4.0 | 5.1 | 1.2 | 51 | 15 |
| APR | | | | | | | | | |
| 09... | 97 | 83 | 83 | 26 | 4.4 | 12 | 2.1 | 64 | 19 |
| MAY | | | | | | | | | |
| 15... | 91 | 86 | 86 | 27 | 4.5 | 14 | 1.8 | 62 | 20 |
| JUL | | | | | | | | | |
| 03... | 80 | 130 | 126 | 40 | 6.3 | 28 | 3.1 | 92 | 41 |
| AUG | | | | | | | | | |
| 21... | 100 | 69 | 69 | 21 | 4.0 | 5.6 | 1.7 | 54 | 15 |

## 02019500 JAMES RIVER AT BUCHANAN, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 05... | 22 | <0.1 | 5.1 | 163 | 170 | 0.01 | 0.25 | 0.39 | 24 |
| NOV 15... | 31 | <0.1 | 5.0 | 184 | 180 | <0.01 | 0.20 | 0.46 | 35 |
| JAN 09... | 9.5 | <0.1 | 5.6 | 98 | 92 | <0.01 | 0.32 | 0.11 | 23 |
| FEB 15... | 8.6 | <0.1 | 5.2 | 89 | 89 | <0.01 | 0.28 | 0.13 | 31 |
| APR 09... | 20 | 0.1 | 2.4 | 134 | 130 | <0.01 | 0.11 | 0.21 | 35 |
| MAY 15... | 21 | <0.1 | 4.7 | 143 | 130 | <0.01 | <0.10 | <0.01 | 31 |
| JUL 03... | 41 | <0.1 | 3.5 | 267 | 220 | <0.01 | <0.10 | <0.01 | 19 |
| AUG 21... | 8.5 | <0.1 | 6.6 | 108 | 95 | <0.01 | 0.36 | -- | -- |

### SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 440 | 240 | 140 | 210 | 360 | 140 | 200 | 262 | 235 | 390 | 370 | 340 |
| 2 | 390 | 277 | 175 | 182 | 115 | 150 | 208 | 260 | 240 | 410 | 380 | 340 |
| 3 | 360 | 285 | 180 | 178 | 100 | 170 | 219 | 280 | 260 | 400 | 350 | 370 |
| 4 | 320 | 321 | 200 | 120 | 125 | 175 | 202 | 218 | 280 | --- | 320 | 350 |
| 5 | 310 | 349 | 220 | 140 | 142 | 198 | 250 | 145 | 300 | 330 | 300 | 370 |
| 6 | 322 | 320 | 219 | 130 | 150 | --- | 218 | 175 | --- | 350 | 300 | 380 |
| 7 | 335 | 315 | 242 | 140 | 160 | 200 | 220 | 180 | 310 | 350 | 325 | 360 |
| 8 | 320 | 290 | 222 | 158 | 158 | 210 | 218 | 180 | 300 | 390 | 350 | 360 |
| 9 | 440 | 280 | 242 | 165 | 196 | 240 | 230 | 218 | 370 | 380 | 350 | 380 |
| 10 | 425 | 303 | 255 | 178 | 192 | 235 | 221 | 220 | 340 | 410 | 350 | 380 |
| 11 | 400 | 315 | 230 | 180 | 230 | 220 | 221 | 240 | 298 | 419 | 330 | 400 |
| 12 | 458 | 340 | 258 | 210 | 258 | 240 | 240 | 240 | 320 | 430 | 300 | 420 |
| 13 | 440 | 340 | 250 | --- | 140 | 245 | 220 | 230 | 340 | 420 | 340 | --- |
| 14 | 441 | 339 | 240 | 220 | 150 | 200 | 238 | 242 | 320 | 390 | 360 | 400 |
| 15 | --- | 340 | 238 | 245 | 178 | 190 | 260 | 240 | 320 | 360 | 380 | 400 |
| 16 | 460 | 320 | 220 | 260 | 190 | 180 | 260 | 245 | 300 | 400 | 390 | 440 |
| 17 | 500 | 320 | 240 | 155 | 199 | 210 | 250 | 260 | 340 | 380 | 365 | 400 |
| 18 | 490 | 322 | 238 | 142 | 210 | 220 | 210 | 236 | 300 | 378 | --- | 420 |
| 19 | 275 | 370 | 280 | 158 | 220 | 220 | 190 | 238 | 345 | 425 | 100 | 540 |
| 20 | 270 | 360 | 242 | --- | 230 | 220 | 200 | 230 | 341 | 420 | 130 | 400 |
| 21 | 322 | 278 | 258 | 180 | 242 | 235 | 218 | 220 | 345 | 420 | 165 | --- |
| 22 | 382 | 210 | 240 | 300 | 259 | 240 | 210 | 280 | 345 | 420 | 180 | 450 |
| 23 | 400 | 219 | 190 | 340 | 240 | --- | 222 | 290 | 350 | 418 | 200 | 400 |
| 24 | 400 | 260 | 180 | 370 | 198 | 222 | 222 | 240 | 360 | 390 | 220 | 450 |
| 25 | 365 | 265 | 195 | 320 | 160 | 198 | 240 | 135 | 341 | 378 | 240 | 420 |
| 26 | 320 | 278 | 180 | 320 | 150 | 180 | 240 | 130 | 345 | 380 | 280 | 500 |
| 27 | 305 | 302 | 160 | 320 | 125 | 180 | 220 | 160 | 350 | 345 | 255 | 440 |
| 28 | 302 | 278 | 180 | 325 | --- | 180 | 250 | 175 | 380 | 370 | 265 | 500 |
| 29 | 339 | 175 | 180 | 360 | --- | 180 | 240 | 198 | 400 | 350 | 275 | 510 |
| 30 | 320 | 120 | 180 | 320 | --- | 190 | 260 | --- | 420 | 340 | 280 | 490 |
| 31 | 260 | --- | 200 | 320 | --- | 190 | --- | 184 | --- | 340 | 320 | --- |
| MEAN | 370 | 291 | 215 | 229 | 188 | 202 | 227 | 218 | 327 | 386 | 292 | 415 |

WTR YR 1985 MEAN 280 MAX 540 MIN 100

## 02019500 JAMES RIVER AT BUCHANAN, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14.5 | 17.5 | 7.5 | 10.5 | 2.5 | 6.5 | 14.0 | 21.0 | 22.0 | 22.0 | 27.0 | 23.0 |
| 2 | 14.5 | 16.5 | 7.5 | 10.5 | 3.5 | 7.5 | 12.0 | 19.0 | 23.0 | 22.0 | 26.0 | 23.5 |
| 3 | 15.0 | 14.0 | 8.0 | 9.5 | 4.0 | 8.0 | 12.0 | 18.0 | 23.5 | 23.0 | 24.5 | 24.5 |
| 4 | 15.5 | 12.5 | 6.5 | 7.5 | 3.5 | 8.0 | 13.0 | 16.0 | 23.0 | --- | 24.0 | 25.5 |
| 5 | 16.0 | 13.0 | 5.5 | 6.5 | 3.0 | 9.5 | 14.0 | 15.5 | 24.0 | 23.0 | 24.0 | 25.5 |
| 6 | 17.0 | 12.0 | 5.0 | 7.0 | 4.0 | --- | 15.0 | 17.0 | --- | 23.5 | 23.0 | 26.5 |
| 7 | 17.5 | 11.5 | 3.0 | 6.0 | 4.0 | 10.0 | 12.5 | 17.0 | 22.0 | 24.0 | 23.0 | 26.5 |
| 8 | 17.5 | 10.0 | 3.5 | 5.0 | 2.5 | 8.5 | 11.5 | 17.0 | 24.0 | 25.5 | 25.0 | 27.5 |
| 9 | 18.0 | 10.0 | 3.5 | 4.5 | 2.0 | 10.0 | 9.5 | 19.0 | 23.5 | 25.5 | 26.0 | 27.5 |
| 10 | 18.5 | 10.5 | 3.5 | 4.0 | 2.0 | 10.0 | 10.0 | 20.5 | 24.5 | 24.5 | 26.0 | 27.5 |
| 11 | 19.5 | 10.5 | 5.5 | 3.5 | 3.5 | 9.0 | 10.0 | 21.5 | 25.0 | 26.0 | 27.0 | 26.5 |
| 12 | 19.5 | 9.5 | 6.0 | 2.5 | 3.0 | 9.5 | 13.0 | 22.0 | 24.5 | 26.0 | 27.5 | 22.5 |
| 13 | 19.0 | 9.0 | 7.5 | 3.0 | 2.5 | 10.0 | 15.0 | 24.0 | 22.0 | 25.0 | 27.5 | --- |
| 14 | 19.0 | 8.5 | 8.5 | 3.0 | 3.0 | 10.0 | 15.0 | 23.5 | 21.0 | 26.5 | 28.5 | 20.0 |
| 15 | --- | 8.5 | 10.0 | 2.5 | 3.5 | 10.0 | 16.0 | 23.0 | 20.5 | 26.5 | 28.5 | 20.0 |
| 16 | 19.0 | 8.5 | 10.0 | 2.0 | 3.0 | 9.0 | 17.5 | 21.0 | 21.0 | 27.0 | 27.0 | 20.0 |
| 17 | 18.0 | 7.5 | 11.5 | 2.0 | 3.5 | 9.0 | 18.0 | 21.0 | 23.0 | 27.5 | 23.0 | 20.0 |
| 18 | 18.5 | 7.0 | 11.5 | 2.0 | 4.0 | 9.0 | 18.5 | 20.0 | 23.5 | 27.5 | --- | 20.0 |
| 19 | 20.5 | 6.5 | 12.0 | 3.5 | 5.0 | 9.0 | 19.5 | 20.5 | 23.0 | 28.0 | 20.0 | 21.0 |
| 20 | 20.0 | 7.0 | 12.0 | --- | 6.5 | 10.0 | 20.5 | 21.0 | 22.5 | 27.5 | 20.5 | 21.5 |
| 21 | 21.0 | 6.5 | 11.0 | .0 | 7.0 | 9.0 | 21.5 | 21.5 | 23.5 | 28.5 | 22.0 | --- |
| 22 | 21.0 | 5.5 | 11.0 | .5 | 7.5 | 8.0 | 21.5 | 21.0 | 23.0 | 27.0 | 22.5 | 20.5 |
| 23 | 21.0 | 5.0 | 9.0 | 1.0 | 9.5 | --- | --- | 21.5 | 25.0 | 27.0 | 22.0 | 22.0 |
| 24 | 20.0 | 5.0 | 7.0 | 1.5 | 10.0 | 10.0 | 21.0 | 17.0 | 26.0 | 26.5 | 21.0 | 21.5 |
| 25 | 19.0 | 5.0 | 7.0 | 1.5 | 10.0 | 10.0 | 21.0 | 17.0 | 26.5 | 24.5 | 21.0 | 21.0 |
| 26 | 19.5 | 5.5 | 6.0 | 1.0 | 9.5 | 10.5 | 20.5 | 17.5 | 26.0 | 25.0 | 22.0 | 21.0 |
| 27 | 19.0 | 7.0 | 6.0 | 1.5 | 8.5 | 11.5 | 19.0 | 18.5 | 25.0 | 24.0 | 23.0 | 20.0 |
| 28 | 20.0 | 8.0 | 7.0 | 1.0 | --- | 13.0 | 20.0 | 18.5 | 25.0 | 25.0 | 23.0 | 20.0 |
| 29 | 20.5 | 9.0 | 9.0 | 2.0 | --- | 15.0 | 20.0 | 19.5 | 25.0 | 26.0 | 24.0 | 18.0 |
| 30 | 19.0 | 7.5 | 9.0 | 1.5 | --- | 16.0 | 20.5 | --- | 23.0 | 26.5 | 24.0 | 19.0 |
| 31 | 18.0 | --- | 9.5 | 1.5 | --- | 14.5 | --- | 20.0 | --- | 27.5 | --- | --- |
| MEAN | 18.5 | 9.0 | 7.5 | 3.5 | 5.0 | 10.0 | 16.5 | 19.5 | 23.5 | 25.5 | 24.0 | 22.5 |

WTR YR 1985 MEAN 15.5 MAX 28.5 MIN .0

## 02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA

**LOCATION.**--Lat 37°59'16", long 79°29'38", Rockbridge County, Hydrologic Unit 02080202, on left bank 20 ft upstream from bridge on State Highway 42 at Goshen and 400 ft upstream from Mill Creek.

**DRAINAGE AREA.**--144 mi².

**PERIOD OF RECORD.**--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder and concrete control. Datum of gage is 1,384.84 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 22, 23. Records good except those for period of no gage-height record, Jan. 22, and period with ice effect, Jan. 23, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--47 years, 164 ft³/s, 15.47 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 20,900 ft³/s, Oct. 6, 1972, gage height, 12.78 ft, from rating curve extended above 9,200 ft³/s on basis of slope-area measurement of peak flow; no flow Sept. 5, 6, 1957, Sept. 28, 1959, result of diversion.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0330 | 4,190 | 7.23 | Aug. 18 | 2100 | *4,640 | *7.56 |

Minimum daily discharge, 13 ft³/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | 100 | 460 | 214 | 143 | 397 | 168 | 46 | 67 | 23 | 30 | 55 |
| 2 | 50 | 85 | 294 | 288 | 831 | 314 | 165 | 48 | 59 | 28 | 44 | 50 |
| 3 | 36 | 75 | 225 | 526 | 567 | 249 | 166 | 1200 | 54 | 24 | 46 | 46 |
| 4 | 28 | 72 | 183 | 745 | 371 | 204 | 159 | 898 | 51 | 21 | 38 | 42 |
| 5 | 24 | 177 | 158 | 687 | 284 | 181 | 142 | 463 | 50 | 20 | 32 | 39 |
| 6 | 20 | 209 | 164 | 514 | 246 | 155 | 130 | 302 | 47 | 20 | 29 | 36 |
| 7 | 19 | 168 | 144 | 427 | 217 | 133 | 117 | 218 | 48 | 20 | 27 | 35 |
| 8 | 20 | 136 | 124 | 353 | 156 | 121 | 105 | 162 | 50 | 18 | 37 | 33 |
| 9 | 22 | 115 | 118 | 268 | 122 | 116 | 96 | 126 | 45 | 17 | 245 | 38 |
| 10 | 21 | 100 | 117 | 216 | 130 | 105 | 89 | 103 | 40 | 18 | 138 | 38 |
| 11 | 20 | 99 | 128 | 188 | 129 | 102 | 83 | 90 | 38 | 20 | 74 | 36 |
| 12 | 19 | 95 | 145 | 166 | 292 | 126 | 78 | 84 | 41 | 37 | 55 | 32 |
| 13 | 18 | 85 | 161 | 165 | 398 | 127 | 74 | 108 | 37 | 53 | 44 | 30 |
| 14 | 18 | 79 | 159 | 137 | 253 | 127 | 71 | 108 | 35 | 81 | 37 | 28 |
| 15 | 17 | 75 | 148 | 122 | 212 | 126 | 69 | 180 | 32 | 42 | 33 | 26 |
| 16 | 20 | 72 | 138 | 109 | 160 | 118 | 70 | 114 | 31 | 39 | 31 | 24 |
| 17 | 22 | 68 | 130 | 106 | 153 | 112 | 67 | 104 | 33 | 31 | 31 | 22 |
| 18 | 23 | 66 | 122 | 95 | 129 | 107 | 63 | 91 | 33 | 27 | 1460 | 20 |
| 19 | 20 | 111 | 123 | 89 | 124 | 100 | 60 | 81 | 29 | 25 | 1510 | 19 |
| 20 | 19 | 209 | 131 | 78 | 145 | 93 | 57 | 70 | 27 | 22 | 458 | 17 |
| 21 | 19 | 196 | 163 | 59 | 176 | 87 | 55 | 62 | 25 | 20 | 252 | 17 |
| 22 | 22 | 165 | 434 | 71 | 211 | 86 | 54 | 61 | 24 | 19 | 173 | 16 |
| 23 | 28 | 143 | 436 | 80 | 316 | 127 | 53 | 68 | 23 | 17 | 123 | 16 |
| 24 | 82 | 127 | 337 | 84 | 612 | 270 | 52 | 371 | 23 | 17 | 100 | 15 |
| 25 | 79 | 112 | 321 | 79 | 750 | 294 | 61 | 438 | 23 | 20 | 103 | 15 |
| 26 | 63 | 99 | 302 | 67 | 842 | 248 | 56 | 268 | 21 | 31 | 101 | 14 |
| 27 | 52 | 88 | 275 | 59 | 770 | 211 | 52 | 176 | 20 | 30 | 101 | 15 |
| 28 | 51 | 673 | 236 | 66 | 539 | 188 | 52 | 127 | 19 | 29 | 88 | 15 |
| 29 | 145 | 2610 | 200 | 56 | --- | 177 | 50 | 101 | 18 | 25 | 77 | 14 |
| 30 | 154 | 847 | 175 | 50 | --- | 174 | 48 | 84 | 17 | 23 | 68 | 13 |
| 31 | 125 | --- | 188 | 56 | --- | 153 | --- | 76 | --- | 25 | 62 | --- |
| TOTAL | 1294 | 7256 | 6439 | 6220 | 9278 | 5128 | 2562 | 6428 | 1060 | 842 | 5647 | 816 |
| MEAN | 41.7 | 242 | 208 | 201 | 331 | 165 | 85.4 | 207 | 35.3 | 27.2 | 182 | 27.2 |
| MAX | 154 | 2610 | 460 | 745 | 842 | 397 | 168 | 1200 | 67 | 81 | 1510 | 55 |
| MIN | 17 | 66 | 117 | 50 | 122 | 86 | 48 | 46 | 17 | 17 | 27 | 13 |
| CFSM | .29 | 1.68 | 1.44 | 1.40 | 2.30 | 1.15 | .59 | 1.44 | .25 | .19 | 1.26 | .19 |
| IN. | .33 | 1.87 | 1.66 | 1.61 | 2.40 | 1.32 | .66 | 1.66 | .27 | .22 | 1.46 | .21 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 89045 | MEAN | 243 | MAX | 4020 | MIN | 13 | CFSM | 1.69 | IN. | 23.00 |
| WTR YR 1985 | TOTAL | 52970 | MEAN | 145 | MAX | 2610 | MIN | 13 | CFSM | 1.01 | IN. | 13.68 |

## 02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA

**LOCATION.**--Lat 37°54'26", long 79°25'20", Rockbridge County, Hydrologic Unit 02080202, on right bank at Rockbridge Baths, 1,200 ft upstream from bridge on State Highway 39, and 1.0 mi upstream from Hays Creek.

**DRAINAGE AREA.**--329 $mi^2$.

**PERIOD OF RECORD.**--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River at Rockbridge Baths.

**REVISED RECORDS.**--WSP 972: 1929-40, 1941(M). WSP 1002: 1930(m). WSP 1553: 1931(m).

**GAGE.**--Water-stage recorder. Datum of gage is 1,100.33 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

**REMARKS.**--Estimated daily discharges: Jan. 21-23. Records good except those for period with ice effect, Jan. 21-23, which are fair. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--57 years, 376 $ft^3/s$, 15.52 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 33,000 $ft^3/s$, Mar. 17, 1936, gage height, 13.07 ft, from rating curve extended above 16,000 $ft^3/s$; minimum, 5.8 $ft^3/s$, Sept. 10, 1966, gage height, 0.79 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 4,500 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0400 | *7,060 | *7.64 | Aug. 18 | 2400 | 6,380 | 7.35 |

Minimum discharge, 32 $ft^3/s$, July 10, gage height, 1.12 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 156 | 320 | 1190 | 565 | 653 | 873 | 475 | 101 | 190 | 56 | 82 | 117 |
| 2 | 217 | 299 | 824 | 681 | 2260 | 724 | 449 | 106 | 157 | 66 | 147 | 103 |
| 3 | 215 | 248 | 654 | 1080 | 1530 | 585 | 431 | 1310 | 141 | 51 | 116 | 92 |
| 4 | 206 | 216 | 530 | 1730 | 973 | 494 | 404 | 1390 | 127 | 45 | 91 | 84 |
| 5 | 190 | 588 | 455 | 1630 | 752 | 449 | 361 | 745 | 128 | 42 | 75 | 76 |
| 6 | 176 | 688 | 523 | 1210 | 656 | 386 | 330 | 512 | 124 | 41 | 65 | 70 |
| 7 | 125 | 519 | 455 | 1020 | 582 | 330 | 297 | 386 | 119 | 42 | 61 | 63 |
| 8 | 99 | 426 | 375 | 866 | 436 | 308 | 268 | 298 | 136 | 39 | 76 | 60 |
| 9 | 87 | 325 | 358 | 687 | 358 | 301 | 245 | 239 | 116 | 34 | 252 | 60 |
| 10 | 115 | 261 | 357 | 569 | 368 | 270 | 222 | 202 | 100 | 35 | 273 | 59 |
| 11 | 121 | 264 | 400 | 508 | 348 | 261 | 207 | 180 | 91 | 38 | 156 | 60 |
| 12 | 92 | 252 | 434 | 443 | 842 | 344 | 195 | 183 | 93 | 81 | 113 | 55 |
| 13 | 77 | 210 | 443 | 377 | 1050 | 316 | 182 | 286 | 92 | 181 | 91 | 52 |
| 14 | 70 | 189 | 416 | 349 | 650 | 299 | 175 | 288 | 79 | 594 | 76 | 49 |
| 15 | 63 | 176 | 378 | 314 | 514 | 288 | 174 | 284 | 74 | 238 | 66 | 48 |
| 16 | 69 | 167 | 349 | 251 | 420 | 267 | 186 | 237 | 72 | 143 | 59 | 47 |
| 17 | 68 | 154 | 327 | 269 | 386 | 258 | 176 | 218 | 76 | 100 | 59 | 46 |
| 18 | 70 | 149 | 304 | 250 | 358 | 246 | 143 | 195 | 78 | 78 | 1640 | 45 |
| 19 | 67 | 360 | 298 | 234 | 358 | 225 | 124 | 169 | 72 | 65 | 3130 | 43 |
| 20 | 63 | 659 | 331 | 198 | 416 | 212 | 120 | 145 | 67 | 57 | 937 | 43 |
| 21 | 60 | 523 | 397 | 160 | 459 | 204 | 118 | 127 | 61 | 52 | 640 | 42 |
| 22 | 60 | 422 | 859 | 170 | 547 | 203 | 113 | 121 | 58 | 48 | 425 | 42 |
| 23 | 127 | 354 | 851 | 165 | 790 | 344 | 110 | 145 | 57 | 45 | 296 | 43 |
| 24 | 304 | 311 | 711 | 176 | 1270 | 591 | 109 | 671 | 54 | 41 | 229 | 42 |
| 25 | 265 | 274 | 709 | 176 | 1460 | 607 | 149 | 1240 | 50 | 158 | 283 | 40 |
| 26 | 206 | 238 | 636 | 154 | 1750 | 518 | 135 | 786 | 48 | 138 | 294 | 50 |
| 27 | 171 | 210 | 597 | 132 | 1600 | 457 | 123 | 541 | 46 | 85 | 273 | 62 |
| 28 | 151 | 1550 | 539 | 146 | 1140 | 420 | 121 | 437 | 46 | 81 | 231 | 56 |
| 29 | 652 | 4950 | 475 | 136 | --- | 419 | 117 | 318 | 46 | 64 | 189 | 54 |
| 30 | 556 | 1940 | 423 | 119 | --- | 507 | 107 | 250 | 46 | 57 | 159 | 54 |
| 31 | 399 | --- | 495 | 142 | --- | 431 | --- | 219 | --- | 54 | 137 | --- |
| TOTAL | 5297 | 17242 | 16093 | 14907 | 22926 | 12137 | 6366 | 12329 | 2644 | 2849 | 10721 | 1757 |
| MEAN | 171 | 575 | 519 | 481 | 819 | 392 | 212 | 398 | 88.1 | 91.9 | 346 | 58.6 |
| MAX | 652 | 4950 | 1190 | 1730 | 2260 | 873 | 475 | 1390 | 190 | 594 | 3130 | 117 |
| MIN | 60 | 149 | 298 | 119 | 348 | 203 | 107 | 101 | 46 | 34 | 59 | 40 |
| CFSM | .52 | 1.75 | 1.58 | 1.46 | 2.49 | 1.19 | .64 | 1.21 | .27 | .28 | 1.05 | .18 |
| IN. | .60 | 1.95 | 1.82 | 1.69 | 2.59 | 1.37 | .72 | 1.39 | .30 | .32 | 1.21 | .20 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 210344 | MEAN | 575 | MAX | 6710 | MIN | 43 | CFSM | 1.75 | IN. | 23.78 |
| WTR YR 1985 | TOTAL | 125268 | MEAN | 343 | MAX | 4950 | MIN | 34 | CFSM | 1.04 | IN. | 14.16 |

## 02022500 KERRS CREEK NEAR LEXINGTON, VA

**LOCATION.**--Lat 37°49'32", long 79°26'36", Rockbridge County, Hydrologic Unit 02080202, on right bank 100 ft upstream from bridge on Interstate Highway 64, 1.4 mi upstream from mouth, and 2.9 mi north of Lexington.

**DRAINAGE AREA.**--35.0 mi².

**PERIOD OF RECORD.**--October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 1203: 1927-29, 1930-34(M), 1935-40, 1941(M), 1942, 1943-48(M), 1949. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 980.32 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Jan. 27, 1927, to Sept. 30, 1953, nonrecording gage at site 1,000 ft downstream at different datum.

**REMARKS.**--Estimated daily discharges: Jan. 16, 17, 21-23, 27 and Feb. 9. Records good except those for periods with ice effect, Jan. 16, 17, 21-23, 27 and Feb. 9, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--59 years, 35.5 ft³/s, 13.77 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 23,000 ft³/s, Sept. 10, 1950, gage height, 13.8 ft, from floodmarks, site and datum then in use, from rating curve extended above 800 ft³/s on basis of contracted-opening and slope-area measurements of peak flow; minimum, 0.90 ft³/s, July 22, 1966 (result of temporary dam upstream); minimum daily, 4.0 ft³/s many days in August and September 1932, Nov. 21, 1938, July 22, 1966.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 600 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 28 | 1415 | *880 | *5.50 | Feb. 12 | 0945 | 605 | 4.97 |

Minimum discharge, 7.3 ft³/s, July 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 13 | 46 | 34 | 250 | 54 | 32 | 15 | 24 | 13 | 12 | 12 |
| 2 | 17 | 13 | 37 | 38 | 275 | 49 | 30 | 20 | 22 | 15 | 13 | 12 |
| 3 | 15 | 12 | 33 | 79 | 121 | 43 | 30 | 77 | 21 | 14 | 10 | 11 |
| 4 | 14 | 14 | 28 | 147 | 80 | 40 | 28 | 47 | 19 | 11 | 9.9 | 11 |
| 5 | 13 | 30 | 28 | 94 | 65 | 38 | 27 | 36 | 19 | 10 | 9.7 | 10 |
| 6 | 13 | 21 | 39 | 70 | 59 | 34 | 26 | 31 | 18 | 9.8 | 9.6 | 10 |
| 7 | 13 | 18 | 32 | 62 | 50 | 32 | 25 | 27 | 18 | 9.4 | 9.7 | 10 |
| 8 | 13 | 16 | 30 | 53 | 41 | 32 | 24 | 24 | 18 | 8.8 | 10 | 10 |
| 9 | 13 | 15 | 28 | 46 | 38 | 31 | 23 | 21 | 15 | 8.5 | 9.8 | 9.8 |
| 10 | 13 | 15 | 29 | 41 | 37 | 28 | 22 | 20 | 14 | 9.3 | 9.2 | 9.7 |
| 11 | 12 | 16 | 30 | 38 | 35 | 29 | 22 | 19 | 14 | 9.8 | 9.2 | 9.5 |
| 12 | 12 | 15 | 32 | 34 | 278 | 30 | 21 | 32 | 15 | 9.8 | 9.5 | 9.4 |
| 13 | 12 | 14 | 30 | 32 | 102 | 27 | 20 | 71 | 13 | 10 | 10 | 9.4 |
| 14 | 12 | 13 | 28 | 31 | 69 | 27 | 20 | 37 | 13 | 12 | 11 | 9.2 |
| 15 | 12 | 13 | 26 | 28 | 57 | 25 | 20 | 30 | 12 | 10 | 12 | 9.2 |
| 16 | 13 | 13 | 24 | 24 | 49 | 24 | 22 | 28 | 13 | 10 | 13 | 9.2 |
| 17 | 12 | 12 | 24 | 25 | 44 | 24 | 19 | 31 | 13 | 9.1 | 17 | 9.1 |
| 18 | 13 | 13 | 22 | 27 | 40 | 23 | 18 | 25 | 12 | 8.5 | 163 | 9.0 |
| 19 | 12 | 27 | 22 | 25 | 40 | 22 | 18 | 22 | 11 | 8.2 | 51 | 8.8 |
| 20 | 12 | 25 | 21 | 21 | 39 | 22 | 17 | 19 | 11 | 8.1 | 27 | 8.6 |
| 21 | 12 | 21 | 33 | 18 | 38 | 21 | 17 | 18 | 10 | 8.0 | 25 | 8.6 |
| 22 | 12 | 18 | 36 | 19 | 42 | 23 | 16 | 18 | 10 | 8.0 | 18 | 8.4 |
| 23 | 30 | 17 | 32 | 20 | 58 | 44 | 16 | 27 | 9.9 | 7.8 | 15 | 8.3 |
| 24 | 29 | 16 | 31 | 21 | 73 | 42 | 16 | 173 | 9.6 | 7.5 | 15 | 8.3 |
| 25 | 19 | 15 | 32 | 21 | 69 | 37 | 20 | 156 | 9.4 | 20 | 20 | 8.3 |
| 26 | 16 | 15 | 29 | 20 | 114 | 33 | 17 | 70 | 9.1 | 20 | 23 | 8.1 |
| 27 | 15 | 14 | 28 | 19 | 80 | 32 | 16 | 49 | 8.6 | 22 | 24 | 8.0 |
| 28 | 14 | 225 | 27 | 18 | 63 | 30 | 16 | 39 | 9.0 | 15 | 18 | 8.0 |
| 29 | 14 | 121 | 26 | 18 | --- | 32 | 17 | 33 | 8.7 | 13 | 16 | 8.0 |
| 30 | 13 | 64 | 25 | 17 | --- | 31 | 16 | 30 | 9.1 | 12 | 15 | 8.0 |
| 31 | 13 | --- | 34 | 20 | --- | 30 | --- | 28 | --- | 11 | 13 | --- |
| TOTAL | 462 | 854 | 922 | 1160 | 2306 | 989 | 631 | 1273 | 408.4 | 348.6 | 627.6 | 278.9 |
| MEAN | 14.9 | 28.5 | 29.7 | 37.4 | 82.4 | 31.9 | 21.0 | 41.1 | 13.6 | 11.2 | 20.2 | 9.30 |
| MAX | 30 | 225 | 46 | 147 | 278 | 54 | 32 | 173 | 24 | 22 | 163 | 12 |
| MIN | 12 | 12 | 21 | 17 | 35 | 21 | 16 | 15 | 8.6 | 7.5 | 9.2 | 8.0 |
| CFSM | .43 | .81 | .85 | 1.07 | 2.35 | .91 | .60 | 1.17 | .39 | .32 | .58 | .27 |
| IN. | .49 | .91 | .98 | 1.23 | 2.45 | 1.05 | .67 | 1.35 | .43 | .37 | .67 | .30 |

CAL YR 1984 TOTAL 18446 MEAN 50.4 MAX 808 MIN 11 CFSM 1.44 IN. 19.61
WTR YR 1985 TOTAL 10260.5 MEAN 28.1 MAX 278 MIN 7.5 CFSM .80 IN. 10.91

## 02024000 MAURY RIVER NEAR BUENA VISTA, VA

LOCATION.--Lat 37°45'45", long 79°23'30", Rockbridge County, Hydrologic Unit 02080202, on right bank 0.5 mi downstream from South River and 2.8 mi northwest of Buena Vista.

DRAINAGE AREA.--646 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River near Buena Vista.

REVISED RECORDS.--WSP 952: 1940-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 846.58 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-24. Records good except those for period with ice effect, Jan. 21-24, which are fair. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 662 ft³/s, 13.92 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft³/s, Aug. 20, 1969, gage height, 31.23 ft, from floodmarks, from rating curve extended above 17,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 20 ft³/s, Oct. 10, 1941, occurred during filling of a small reservoir 2 mi upstream; unqualified minimum, 37 ft³/s, Sept. 9, 1966; minimum gage height, 0.98 ft, Jan. 5, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,200 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 29 | 0800 | *8,020 | *9.01 | Aug. 19 | 0330 | 6,930 | 8.33 |

Minimum discharge, 113 ft³/s, Sept. 27, gage height, 1.31 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 317 | 458 | 1720 | 763 | 1740 | 1250 | 747 | 261 | 465 | 177 | 183 | 312 |
| 2 | 404 | 434 | 1240 | 828 | 3630 | 1070 | 724 | 260 | 409 | 205 | 299 | 282 |
| 3 | 363 | 379 | 994 | 1370 | 2550 | 914 | 688 | 933 | 371 | 223 | 276 | 261 |
| 4 | 347 | 367 | 833 | 2360 | 1650 | 797 | 659 | 1800 | 346 | 191 | 235 | 240 |
| 5 | 331 | 615 | 731 | 2270 | 1280 | 733 | 607 | 1020 | 353 | 171 | 210 | 223 |
| 6 | 322 | 873 | 808 | 1810 | 1110 | 662 | 566 | 744 | 338 | 152 | 189 | 209 |
| 7 | 282 | 693 | 758 | 1550 | 1010 | 592 | 534 | 598 | 317 | 144 | 178 | 196 |
| 8 | 246 | 571 | 637 | 1360 | 805 | 559 | 500 | 501 | 318 | 139 | 175 | 184 |
| 9 | 226 | 506 | 603 | 1140 | 654 | 552 | 466 | 437 | 312 | 135 | 183 | 177 |
| 10 | 214 | 421 | 591 | 976 | 679 | 512 | 438 | 389 | 290 | 139 | 428 | 172 |
| 11 | 250 | 400 | 627 | 884 | 654 | 489 | 415 | 356 | 336 | 183 | 301 | 171 |
| 12 | 237 | 406 | 673 | 797 | 2700 | 543 | 398 | 348 | 291 | 164 | 237 | 175 |
| 13 | 209 | 357 | 693 | 706 | 2130 | 540 | 379 | 512 | 267 | 372 | 208 | 163 |
| 14 | 194 | 330 | 667 | 666 | 1320 | 507 | 363 | 485 | 253 | 718 | 186 | 155 |
| 15 | 190 | 313 | 619 | 613 | 1050 | 490 | 356 | 413 | 236 | 502 | 165 | 150 |
| 16 | 198 | 301 | 584 | 517 | 871 | 468 | 385 | 449 | 232 | 326 | 153 | 147 |
| 17 | 204 | 289 | 554 | 564 | 781 | 453 | 376 | 447 | 235 | 256 | 158 | 143 |
| 18 | 198 | 281 | 528 | 533 | 727 | 441 | 340 | 398 | 224 | 216 | 1120 | 138 |
| 19 | 195 | 386 | 509 | 502 | 684 | 421 | 308 | 352 | 218 | 190 | 4520 | 135 |
| 20 | 188 | 790 | 530 | 449 | 727 | 403 | 293 | 322 | 206 | 173 | 1460 | 131 |
| 21 | 181 | 691 | 571 | 335 | 734 | 387 | 287 | 294 | 193 | 158 | 1150 | 127 |
| 22 | 181 | 578 | 935 | 375 | 780 | 402 | 279 | 279 | 182 | 151 | 823 | 124 |
| 23 | 277 | 507 | 1060 | 400 | 976 | 594 | 273 | 307 | 175 | 145 | 613 | 124 |
| 24 | 548 | 462 | 925 | 395 | 1420 | 851 | 271 | 775 | 224 | 133 | 492 | 124 |
| 25 | 474 | 425 | 893 | 409 | 1730 | 931 | 334 | 2080 | 182 | 139 | 559 | 120 |
| 26 | 387 | 391 | 830 | 390 | 2070 | 823 | 326 | 1310 | 165 | 360 | 710 | 116 |
| 27 | 335 | 356 | 783 | 362 | 2050 | 732 | 299 | 916 | 154 | 267 | 679 | 125 |
| 28 | 304 | 1360 | 734 | 353 | 1560 | 678 | 291 | 1360 | 151 | 248 | 560 | 136 |
| 29 | 658 | 6350 | 671 | 346 | --- | 676 | 291 | 739 | 149 | 216 | 462 | 133 |
| 30 | 734 | 2770 | 615 | 328 | --- | 814 | 274 | 593 | 146 | 189 | 394 | 130 |
| 31 | 559 | --- | 662 | 349 | --- | 729 | --- | 522 | --- | 174 | 348 | --- |
| TOTAL | 9753 | 23060 | 23578 | 24700 | 38072 | 20013 | 12467 | 20200 | 7738 | 6956 | 17654 | 5023 |
| MEAN | 315 | 769 | 761 | 797 | 1360 | 646 | 416 | 652 | 258 | 224 | 569 | 167 |
| MAX | 734 | 6350 | 1720 | 2360 | 3630 | 1250 | 747 | 2080 | 465 | 718 | 4520 | 312 |
| MIN | 181 | 281 | 509 | 328 | 654 | 387 | 271 | 260 | 146 | 133 | 153 | 116 |
| CFSM | .49 | 1.19 | 1.18 | 1.23 | 2.11 | 1.00 | .64 | 1.01 | .40 | .35 | .88 | .26 |
| IN. | .56 | 1.33 | 1.36 | 1.42 | 2.19 | 1.15 | .72 | 1.16 | .45 | .40 | 1.02 | .29 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 350018 | MEAN | 956 | MAX | 8540 | MIN | 176 | CFSM 1.48 | IN. | 20.16 |
| WTR YR 1985 | TOTAL | 209214 | MEAN | 573 | MAX | 6350 | MIN | 116 | CFSM .89 | IN. | 12.05 |

## 02025500 JAMES RIVER AT HOLCOMBS ROCK, VA

**LOCATION.**--Lat 37°30'04", long 79°15'46", Bedford County, Hydrologic Unit 02080203, on right bank at Holcombs Rock, 0.9 mi downstream from Pedlar River, and at mile 268.6.

**DRAINAGE AREA.**--3,259 mi$^2$.

**PERIOD OF RECORD.**--January 1900 to September 1915 (gage heights only), October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "at Salt Creek" December 1926 to June 1931.

**REVISED RECORDS.**--WSP 972: 1913(M), 1932-33, 1935(M), 1936. WSP 1303: 1928(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 548.53 ft above National Geodetic Vertical Datum of 1929. January 1900 to September 1915, nonrecording gage in powerhouse of Owens Illinois Glass Company 1,000 ft upstream at different datum. December 1926 to June 1931, water-stage recorder at site 2 mi downstream at different datum.

**REMARKS.**--No estimated daily discharges. Records good. Some diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 117.4 mi upstream; since October 1984 by Back Creek Lake 145.4 mi upstream; and since January 1985 by Little Back Creek Lake 148.5 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--59 years, 3,590 ft$^3$/s, 14.96 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 150,000 ft$^3$/s, Aug. 20, 1969, gage height, 35.50 ft, from rating curve extended above 73,000 ft$^3$/s on basis of records for other stations in James River basin; minimum, 71 ft$^3$/s, Oct. 24, 1963; minimum daily, 223 ft$^3$/s, July 28, 1930; minimum gage height, 2.91 ft, Oct. 5, 1970.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in March 1913 reached a stage of 31.3 ft, from floodmarks, discharge, 118,000 ft$^3$/s, from rating curve extended as explained above.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 25,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 1445 | *24,600 | *14.29 | No peak equal to or greater than base discharge. | | | |

Minimum discharge, 72 ft$^3$/s, July 23, gage height, 3.02 ft; minimum daily, 736 ft$^3$/s, Sept. 28.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1670 | 1980 | 6810 | 3210 | 3550 | 7490 | 3210 | 1830 | 2480 | 770 | 1200 | 1710 |
| 2 | 1910 | 1820 | 5130 | 3790 | 18300 | 5770 | 3170 | 1770 | 2330 | 1210 | 1290 | 1530 |
| 3 | 1970 | 1720 | 4020 | 4810 | 19200 | 4930 | 3040 | 1970 | 2020 | 1300 | 1400 | 1420 |
| 4 | 1660 | 1580 | 3440 | 11400 | 11500 | 4300 | 2980 | 6100 | 2000 | 1350 | 1530 | 1300 |
| 5 | 1410 | 1780 | 3000 | 13600 | 8020 | 3880 | 2880 | 6260 | 1890 | 1290 | 1430 | 1260 |
| 6 | 1330 | 2240 | 3000 | 11000 | 6330 | 3370 | 2760 | 3910 | 1860 | 1220 | 1170 | 1350 |
| 7 | 1280 | 2420 | 3020 | 8480 | 5140 | 3050 | 2710 | 3340 | 1820 | 1150 | 1120 | 1080 |
| 8 | 1290 | 2150 | 2840 | 6460 | 4400 | 2900 | 2700 | 2630 | 1790 | 1120 | 1270 | 1060 |
| 9 | 1030 | 1970 | 2600 | 5460 | 3710 | 2830 | 2580 | 2320 | 1780 | 1060 | 961 | 1080 |
| 10 | 1140 | 1750 | 2540 | 4470 | 3190 | 2740 | 2380 | 2130 | 1750 | 971 | 1220 | 1180 |
| 11 | 1080 | 1740 | 2540 | 3860 | 3130 | 2680 | 2340 | 2060 | 1710 | 1040 | 1540 | 946 |
| 12 | 1140 | 1680 | 2660 | 3560 | 7320 | 2650 | 2290 | 1890 | 1670 | 1090 | 1410 | 978 |
| 13 | 1090 | 1690 | 2790 | 3200 | 11200 | 2970 | 2230 | 2350 | 1550 | 1090 | 1080 | 1000 |
| 14 | 1050 | 1670 | 2830 | 2930 | 7470 | 3430 | 2150 | 2410 | 1440 | 1320 | 1110 | 970 |
| 15 | 1030 | 1580 | 2710 | 2790 | 5330 | 3670 | 2140 | 2270 | 1500 | 1650 | 1080 | 946 |
| 16 | 1030 | 1460 | 2550 | 2570 | 4230 | 3090 | 2270 | 2170 | 1430 | 1520 | 846 | 933 |
| 17 | 1370 | 1460 | 2460 | 2390 | 3710 | 2760 | 2490 | 3550 | 1490 | 1210 | 862 | 928 |
| 18 | 1360 | 1400 | 2320 | 2500 | 3410 | 2620 | 2780 | 2660 | 1450 | 1120 | 4230 | 919 |
| 19 | 1130 | 1670 | 2290 | 2330 | 3150 | 2540 | 2580 | 2320 | 1390 | 1070 | 17700 | 910 |
| 20 | 1130 | 2020 | 2280 | 2270 | 2960 | 2420 | 2480 | 1950 | 1280 | 998 | 9190 | 895 |
| 21 | 1070 | 3060 | 2330 | 1610 | 2980 | 2370 | 2380 | 1710 | 1120 | 946 | 5230 | 811 |
| 22 | 1080 | 2680 | 2790 | 1330 | 3110 | 2410 | 2280 | 1650 | 1090 | 855 | 3810 | 772 |
| 23 | 1310 | 2290 | 4180 | 1570 | 3420 | 2920 | 2140 | 1970 | 1130 | 737 | 2960 | 866 |
| 24 | 1850 | 2130 | 4140 | 2130 | 4620 | 3580 | 2050 | 4520 | 1130 | 866 | 2590 | 904 |
| 25 | 2250 | 1990 | 3820 | 2130 | 6580 | 4270 | 2140 | 15000 | 1120 | 932 | 3240 | 879 |
| 26 | 1940 | 1850 | 4060 | 1980 | 9200 | 4170 | 2360 | 11700 | 1090 | 1240 | 3390 | 840 |
| 27 | 1750 | 1760 | 4270 | 1760 | 11800 | 3940 | 2220 | 6850 | 1050 | 1690 | 3290 | 867 |
| 28 | 1530 | 2250 | 3970 | 1760 | 9960 | 3560 | 2110 | 5540 | 1040 | 1490 | 2820 | 736 |
| 29 | 1540 | 14400 | 3760 | 1730 | --- | 3400 | 2060 | 4030 | 1020 | 1520 | 2390 | 915 |
| 30 | 2500 | 12000 | 3200 | 1650 | --- | 3440 | 1950 | 3280 | 1000 | 1370 | 2100 | 759 |
| 31 | 2290 | --- | 3090 | 1630 | --- | 3340 | --- | 2920 | --- | 1010 | 1750 | --- |
| TOTAL | 45210 | 80190 | 101440 | 120360 | 186920 | 107490 | 73850 | 115060 | 45420 | 36205 | 85209 | 30744 |
| MEAN | 1458 | 2673 | 3272 | 3883 | 6676 | 3467 | 2462 | 3712 | 1514 | 1168 | 2749 | 1025 |
| MAX | 2500 | 14400 | 6810 | 13600 | 19200 | 7490 | 3210 | 15000 | 2480 | 1690 | 17700 | 1710 |
| MIN | 1030 | 1400 | 2280 | 1330 | 2960 | 2370 | 1950 | 1650 | 1000 | 737 | 846 | 736 |
| (*) | -46 | +277 | +166 | +78 | +126 | +3 | -3 | +8 | -72 | -158 | -122 | -188 |
| MEAN† | 1412 | 2950 | 3438 | 3961 | 6802 | 3470 | 2459 | 3720 | 1442 | 1010 | 2627 | 837 |
| CFSM† | .43 | .91 | 1.05 | 1.22 | 2.09 | 1.06 | .75 | 1.14 | .44 | .31 | .81 | .26 |
| IN† | .50 | 1.01 | 1.22 | 1.40 | 2.17 | 1.23 | .84 | 1.32 | .49 | .36 | .93 | .29 |

CAL YR 1984 TOTAL 1715770 MEAN 4688 MAX 51300 MIN 1030 MEAN† 4709 CFSM† 1.44 IN.† 19.67
WTR YR 1985 TOTAL 1028098 MEAN 2817 MAX 19200 MIN 736 MEAN† 2822 CFSM† .87 IN.† 11.76

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02026000 JAMES RIVER AT BENT CREEK, VA

**LOCATION.**--Lat 37°32'10", long 78°49'30", Nelson County, Hydrologic Unit 02080203, on left bank at town of Bent Creek, 150 ft downstream from Bent Creek, 525 ft upstream from bridge on U.S. Highway 60, 1.3 mi southeast of Gladstone, and at mile 227.8.

**DRAINAGE AREA.**--3,683 mi$^2$.

**PERIOD OF RECORD.**--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to 1926, published as "at Bent Creek, near Gladstone."

**REVISED RECORDS.**--WSP 742: 1931(m). WSP 972: 1935-36. WSP 1066: 1940. WSP 1203: 1942. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 381.39 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 20-22, 25 and Sept. 20-30. Records good except those for period with ice effect, Jan. 20-22, 25, and period of doubtful gage-height record, Sept. 20-30, which are fair. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 158.3 mi upstream; since October 1984 by Back Creek Lake 186.3 mi upstream; and since January 1985 by Little Back Creek Lake 189.4 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--61 years, 4,188 ft$^3$/s, 15.44 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 176,000 ft$^3$/s, June 21, 1972, gage height, 27.13 ft, from high-water mark in gage house, from rating curve extended above 89,000 ft$^3$/s on basis of velocity-area studies and records for other stations in James River basin; minimum, 222 ft$^3$/s, Oct. 13, 14, 1930, gage height, 2.21 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 26,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 2200 | *25,100 | *10.07 | No peak equal to or greater than base discharge. | | | |

Minimum daily discharge, 641 ft$^3$/s, July 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2440 | 2340 | 8860 | 3520 | 3720 | 9280 | 4250 | 2140 | 2850 | 988 | 1270 | 1970 |
| 2 | 2160 | 2190 | 6760 | 4470 | 15100 | 7150 | 3870 | 1770 | 2460 | 886 | 1040 | 1990 |
| 3 | 2260 | 1770 | 5480 | 5320 | 22000 | 6300 | 3920 | 2620 | 2540 | 1210 | 1410 | 1850 |
| 4 | 2230 | 1860 | 4440 | 10100 | 14000 | 5610 | 3590 | 3310 | 2290 | 1420 | 1440 | 1860 |
| 5 | 1930 | 2070 | 4070 | 14600 | 9770 | 4930 | 3150 | 8240 | 2070 | 1130 | 1420 | 1780 |
| 6 | 1630 | 2410 | 3840 | 12200 | 7940 | 4510 | 3240 | 5650 | 2440 | 1280 | 1430 | 1460 |
| 7 | 1330 | 2370 | 3870 | 10500 | 6580 | 3870 | 3210 | 4180 | 2150 | 1150 | 1210 | 1400 |
| 8 | 1520 | 2900 | 3330 | 7810 | 5860 | 3340 | 3480 | 3430 | 2080 | 1010 | 1310 | 1330 |
| 9 | 1460 | 2160 | 3210 | 6850 | 4500 | 3160 | 3060 | 2730 | 1810 | 1020 | 1620 | 2400 |
| 10 | 1460 | 2020 | 3320 | 6150 | 4030 | 3300 | 2870 | 2420 | 2140 | 1070 | 1280 | 2580 |
| 11 | 1360 | 1920 | 2950 | 4840 | 4100 | 3500 | 2720 | 1900 | 2050 | 929 | 1070 | 1550 |
| 12 | 1050 | 2240 | 3150 | 4020 | 7150 | 3140 | 2670 | 2200 | 2030 | 1410 | 1430 | 1170 |
| 13 | 1400 | 1930 | 3210 | 4040 | 12400 | 3150 | 2270 | 5400 | 1750 | 1110 | 1530 | 1200 |
| 14 | 1250 | 1730 | 3670 | 3700 | 9930 | 3820 | 2560 | 2640 | 1800 | 1350 | 1250 | 1230 |
| 15 | 1250 | 1740 | 3070 | 3390 | 7040 | 4420 | 2800 | 3100 | 1350 | 1470 | 845 | 1190 |
| 16 | 1220 | 1850 | 3070 | 3280 | 5680 | 3820 | 2720 | 2460 | 1560 | 1700 | 1050 | 1170 |
| 17 | 1380 | 1360 | 3380 | 2910 | 4800 | 3500 | 2830 | 3840 | 1590 | 1570 | 943 | 1140 |
| 18 | 1610 | 1620 | 2800 | 2570 | 4340 | 3430 | 3020 | 2930 | 1590 | 1280 | 6300 | 1080 |
| 19 | 1550 | 2090 | 2690 | 2780 | 3990 | 3070 | 3180 | 2840 | 1690 | 922 | 14100 | 968 |
| 20 | 1260 | 2150 | 2760 | 2500 | 3880 | 3000 | 2530 | 2650 | 1320 | 960 | 15300 | 920 |
| 21 | 1280 | 2800 | 2390 | 2200 | 3770 | 2850 | 2820 | 1880 | 1180 | 929 | 8730 | 820 |
| 22 | 1430 | 3300 | 3060 | 2000 | 3490 | 2620 | 3010 | 1780 | 1020 | 945 | 6610 | 1080 |
| 23 | 2540 | 2910 | 4440 | 2020 | 3700 | 3250 | 2470 | 2430 | 1100 | 847 | 4360 | 1130 |
| 24 | 2510 | 2450 | 5210 | 2330 | 4980 | 4080 | 2430 | 4440 | 1090 | 641 | 3150 | 1040 |
| 25 | 2720 | 2350 | 4810 | 2600 | 6440 | 4770 | 2110 | 12000 | 1080 | 882 | 4180 | 872 |
| 26 | 2360 | 2350 | 4650 | 2800 | 9010 | 5220 | 2480 | 14800 | 1180 | 1540 | 5840 | 786 |
| 27 | 1900 | 1940 | 5210 | 2430 | 12100 | 5130 | 2500 | 8710 | 1050 | 1230 | 4500 | 883 |
| 28 | 1970 | 2420 | 5010 | 2410 | 11400 | 4880 | 2510 | 6810 | 895 | 1860 | 4130 | 895 |
| 29 | 1820 | 9640 | 4470 | 2030 | --- | 4180 | 2630 | 5900 | 1070 | 1740 | 3020 | 937 |
| 30 | 1990 | 15100 | 4170 | 2020 | --- | 3650 | 2240 | 4290 | 962 | 1980 | 2830 | 1000 |
| 31 | 3220 | --- | 4130 | 2390 | --- | 4190 | --- | 3510 | --- | 1110 | 2390 | --- |
| TOTAL | 55490 | 85980 | 125480 | 140780 | 211700 | 131120 | 87140 | 133000 | 50187 | 37569 | 106988 | 39681 |
| MEAN | 1790 | 2866 | 4048 | 4541 | 7561 | 4230 | 2905 | 4290 | 1673 | 1212 | 3451 | 1323 |
| MAX | 3220 | 15100 | 8860 | 14600 | 22000 | 9280 | 4250 | 14800 | 2850 | 1980 | 15300 | 2580 |
| MIN | 1050 | 1360 | 2390 | 2000 | 3490 | 2620 | 2110 | 1770 | 895 | 641 | 845 | 786 |
| (*) | -46 | +277 | +166 | +78 | +126 | +3 | -3 | +8 | -72 | -158 | -122 | -188 |
| MEAN† | 1744 | 3143 | 4214 | 4619 | 7687 | 4233 | 2902 | 4298 | 1601 | 1054 | 3329 | 1135 |
| CFSM† | .47 | .85 | 1.14 | 1.25 | 2.09 | 1.15 | .79 | 1.17 | .43 | .29 | .90 | .31 |
| IN.† | .55 | .95 | 1.32 | 1.45 | 2.17 | 1.33 | .88 | 1.35 | .49 | .33 | 1.04 | .34 |

CAL YR 1984 TOTAL 1973210 MEAN 5391 MAX 57600 MIN 1040 MEAN† 5412 CFSM† 1.47 IN.† 20.01
WTR YR 1985 TOTAL 1205115 MEAN 3302 MAX 22000 MIN 641 MEAN† 3307 CFSM† .90 IN.† 12.19

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02027000 TYE RIVER NEAR LOVINGSTON, VA

**LOCATION.**--Lat 37°42'55", long 78°58'55", Nelson County, Hydrologic Unit 02080203, on right bank at downstream side of bridge on State Highway 158, 3.5 mi downstream from Hat Creek, 4.8 mi upstream from Piney River, and 6.8 mi southwest of Lovingston.

**DRAINAGE AREA.**--92.8 mi$^2$.

**PERIOD OF RECORD.**--August 1938 to current year.

**REVISED RECORDS.**--WSP 892: 1938. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 578.39 ft above National Geodetic Vertical Datum of 1929. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 22-31 and Feb. 10. Records good except those for periods with ice effect, Jan. 22-31 and Feb. 10, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--47 years, 155 ft$^3$/s, 22.68 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 80,000 ft$^3$/s, Aug. 20, 1969, gage height, 29.0 ft, from floodmarks, from rating curve extended above 7,600 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 0.50 ft$^3$/s, Sept. 10, 11, 1966.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,600 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1930 | 1,670 | 4.75 | Aug. 20 | 1945 | *2,380 | *5.98 |

Minimum discharge, 13 ft$^3$/s, Jan. 20, 21, result of freezeup.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 126 | 44 | 222 | 84 | 191 | 203 | 155 | 90 | 174 | 54 | 147 | 170 |
| 2 | 72 | 35 | 178 | 94 | 325 | 190 | 140 | 89 | 155 | 75 | 183 | 154 |
| 3 | 47 | 33 | 154 | 149 | 228 | 174 | 135 | 138 | 149 | 65 | 120 | 141 |
| 4 | 36 | 34 | 133 | 219 | 183 | 163 | 130 | 155 | 149 | 53 | 98 | 131 |
| 5 | 33 | 85 | 125 | 205 | 161 | 157 | 124 | 139 | 160 | 50 | 85 | 121 |
| 6 | 34 | 60 | 141 | 187 | 150 | 145 | 122 | 131 | 146 | 48 | 79 | 111 |
| 7 | 31 | 49 | 114 | 184 | 139 | 144 | 118 | 124 | 134 | 48 | 89 | 100 |
| 8 | 31 | 45 | 105 | 170 | 117 | 140 | 125 | 116 | 129 | 46 | 152 | 95 |
| 9 | 32 | 44 | 100 | 153 | 108 | 139 | 120 | 108 | 119 | 45 | 98 | 91 |
| 10 | 32 | 43 | 96 | 142 | 104 | 127 | 114 | 102 | 108 | 45 | 82 | 86 |
| 11 | 33 | 45 | 98 | 137 | 107 | 116 | 111 | 99 | 103 | 59 | 73 | 82 |
| 12 | 34 | 43 | 98 | 128 | 306 | 118 | 107 | 97 | 101 | 272 | 66 | 78 |
| 13 | 35 | 39 | 97 | 117 | 273 | 109 | 104 | 106 | 92 | 155 | 61 | 75 |
| 14 | 37 | 37 | 93 | 119 | 213 | 107 | 101 | 96 | 85 | 114 | 55 | 60 |
| 15 | 41 | 38 | 89 | 110 | 183 | 103 | 101 | 85 | 83 | 88 | 47 | 56 |
| 16 | 50 | 37 | 87 | 97 | 165 | 99 | 106 | 85 | 83 | 82 | 43 | 54 |
| 17 | 43 | 36 | 86 | 109 | 155 | 98 | 99 | 488 | 86 | 128 | 44 | 49 |
| 18 | 40 | 37 | 83 | 102 | 145 | 92 | 95 | 313 | 79 | 74 | 929 | 49 |
| 19 | 40 | 100 | 81 | 95 | 137 | 88 | 92 | 226 | 72 | 63 | 987 | 48 |
| 20 | 40 | 78 | 80 | 76 | 129 | 87 | 90 | 190 | 66 | 57 | 897 | 47 |
| 21 | 42 | 61 | 97 | 77 | 126 | 85 | 88 | 167 | 61 | 54 | 662 | 42 |
| 22 | 50 | 56 | 96 | 80 | 134 | 89 | 86 | 153 | 57 | 50 | 421 | 41 |
| 23 | 75 | 53 | 85 | 81 | 171 | 185 | 84 | 309 | 56 | 47 | 310 | 46 |
| 24 | 88 | 52 | 82 | 81 | 198 | 205 | 81 | 367 | 82 | 41 | 260 | 44 |
| 25 | 57 | 50 | 84 | 80 | 215 | 191 | 106 | 472 | 67 | 62 | 417 | 40 |
| 26 | 46 | 48 | 80 | 76 | 258 | 172 | 89 | 363 | 57 | 191 | 458 | 39 |
| 27 | 49 | 47 | 79 | 74 | 244 | 158 | 85 | 281 | 49 | 140 | 419 | 37 |
| 28 | 55 | 123 | 79 | 74 | 221 | 148 | 87 | 256 | 47 | 130 | 321 | 38 |
| 29 | 52 | 481 | 77 | 73 | --- | 148 | 103 | 212 | 45 | 119 | 263 | 39 |
| 30 | 51 | 298 | 75 | 72 | --- | 167 | 95 | 198 | 43 | 113 | 224 | 43 |
| 31 | 49 | --- | 88 | 80 | --- | 149 | --- | 188 | --- | 90 | 194 | --- |
| TOTAL | 1481 | 2231 | 3182 | 3525 | 5086 | 4296 | 3193 | 5943 | 2837 | 2658 | 8284 | 2207 |
| MEAN | 47.8 | 74.4 | 103 | 114 | 182 | 139 | 106 | 192 | 94.6 | 85.7 | 267 | 73.6 |
| MAX | 126 | 481 | 222 | 219 | 325 | 205 | 155 | 488 | 174 | 272 | 987 | 170 |
| MIN | 31 | 33 | 75 | 72 | 104 | 85 | 81 | 85 | 43 | 41 | 43 | 37 |
| CFSM | .52 | .80 | 1.11 | 1.23 | 1.96 | 1.50 | 1.14 | 2.07 | 1.02 | .92 | 2.88 | .79 |
| IN. | .59 | .89 | 1.28 | 1.41 | 2.04 | 1.72 | 1.28 | 2.38 | 1.14 | 1.07 | 3.32 | .88 |

CAL YR 1984 TOTAL 67469 MEAN 184 MAX 2030 MIN 29 CFSM 1.98 IN. 27.05
WTR YR 1985 TOTAL 44923 MEAN 123 MAX 987 MIN 31 CFSM 1.33 IN. 18.01

## 02027500 PINEY RIVER AT PINEY RIVER, VA

**LOCATION.**--Lat 37°42'08", long 79°01'40", Nelson County, Hydrologic Unit 02080203, on left bank at upstream side of bridge on State Highway 151, 0.2 mi southwest of Piney River post office, 1.7 mi downstream from Indian Creek, and 2.5 mi southeast of Lowesville.

**DRAINAGE AREA.**--47.6 mi².

**PERIOD OF RECORD.**--July 1949 to current year.

**REVISED RECORDS.**--WSP 2104: Drainage area. WDR VA-72-1: 1971(M).

**GAGE.**--Water-stage recorder. Datum of gage is 633.58 ft above National Geodetic Vertical Datum of 1929. Prior to May 27, 1969, water-stage recorder, and Nov. 4, 1969, to Feb. 26, 1970, nonrecording gage at site 20 ft downstream from former highway bridge at same datum. Feb. 26, 1970, to Sept. 20, 1973, on right bank 20 ft upstream from bridge at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 21-27 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 21-27 and Feb. 9, 10, which are fair. Periodic dewatering of upstream quarries adds small amount of inflow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--36 years, 94.3 ft³/s, 26.90 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 38,000 ft³/s, Aug. 20, 1969, gage height, 13.8 ft, from floodmarks, from rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 1.1 ft³/s, Sept. 13, 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in June 1949 reached a stage of 9.9 ft, from floodmarks.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 650 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1530 | *1,660 | *4.48 | Aug. 20 | 1930 | 1,640 | 4.45 |

Minimum discharge, 16 ft³/s, Oct. 21.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 74 | 27 | 172 | 52 | 115 | 138 | 96 | 47 | 93 | 37 | 99 | 136 |
| 2 | 38 | 27 | 144 | 61 | 152 | 130 | 89 | 55 | 82 | 38 | 113 | 119 |
| 3 | 29 | 26 | 126 | 93 | 120 | 119 | 86 | 99 | 76 | 33 | 92 | 104 |
| 4 | 25 | 27 | 109 | 136 | 107 | 112 | 83 | 87 | 70 | 29 | 81 | 93 |
| 5 | 22 | 51 | 102 | 141 | 101 | 105 | 80 | 88 | 92 | 30 | 72 | 82 |
| 6 | 19 | 39 | 104 | 140 | 97 | 97 | 77 | 84 | 71 | 27 | 66 | 74 |
| 7 | 19 | 39 | 88 | 135 | 90 | 91 | 76 | 80 | 69 | 26 | 69 | 68 |
| 8 | 20 | 39 | 81 | 124 | 82 | 88 | 74 | 74 | 65 | 23 | 83 | 63 |
| 9 | 21 | 39 | 76 | 116 | 75 | 85 | 70 | 68 | 58 | 24 | 63 | 58 |
| 10 | 22 | 38 | 72 | 107 | 70 | 79 | 66 | 63 | 55 | 24 | 55 | 53 |
| 11 | 24 | 39 | 70 | 102 | 72 | 77 | 64 | 60 | 60 | 28 | 51 | 49 |
| 12 | 22 | 36 | 66 | 95 | 193 | 75 | 62 | 58 | 51 | 70 | 46 | 48 |
| 13 | 19 | 34 | 63 | 89 | 144 | 71 | 59 | 59 | 46 | 68 | 44 | 43 |
| 14 | 18 | 33 | 61 | 85 | 124 | 68 | 58 | 51 | 43 | 44 | 41 | 41 |
| 15 | 20 | 33 | 59 | 79 | 111 | 65 | 57 | 47 | 42 | 35 | 37 | 38 |
| 16 | 23 | 32 | 57 | 74 | 102 | 63 | 63 | 52 | 48 | 35 | 38 | 36 |
| 17 | 23 | 31 | 56 | 74 | 94 | 61 | 55 | 173 | 43 | 47 | 46 | 35 |
| 18 | 22 | 32 | 54 | 66 | 88 | 59 | 53 | 105 | 38 | 31 | 1030 | 34 |
| 19 | 20 | 62 | 53 | 63 | 84 | 57 | 51 | 88 | 34 | 27 | 697 | 31 |
| 20 | 21 | 47 | 51 | 52 | 79 | 56 | 49 | 79 | 34 | 24 | 530 | 30 |
| 21 | 18 | 43 | 62 | 51 | 75 | 54 | 48 | 73 | 31 | 22 | 348 | 28 |
| 22 | 23 | 41 | 58 | 51 | 75 | 60 | 46 | 71 | 30 | 21 | 248 | 28 |
| 23 | 37 | 41 | 54 | 50 | 80 | 117 | 45 | 156 | 31 | 20 | 190 | 29 |
| 24 | 41 | 41 | 53 | 50 | 91 | 114 | 45 | 206 | 38 | 18 | 167 | 27 |
| 25 | 33 | 40 | 54 | 49 | 104 | 118 | 60 | 276 | 29 | 49 | 269 | 24 |
| 26 | 32 | 39 | 52 | 47 | 137 | 118 | 47 | 229 | 27 | 79 | 324 | 23 |
| 27 | 31 | 38 | 52 | 45 | 145 | 116 | 45 | 186 | 26 | 75 | 329 | 22 |
| 28 | 30 | 150 | 51 | 42 | 144 | 110 | 51 | 158 | 26 | 72 | 274 | 21 |
| 29 | 30 | 299 | 50 | 41 | --- | 109 | 51 | 136 | 26 | 75 | 224 | 19 |
| 30 | 28 | 218 | 49 | 39 | --- | 103 | 48 | 120 | 25 | 70 | 185 | 19 |
| 31 | 28 | --- | 57 | 43 | --- | 98 | --- | 106 | --- | 66 | 156 | --- |
| TOTAL | 832 | 1681 | 2256 | 2392 | 2951 | 2813 | 1854 | 3234 | 1459 | 1267 | 6067 | 1475 |
| MEAN | 26.8 | 56.0 | 72.8 | 77.2 | 105 | 90.7 | 61.8 | 104 | 48.6 | 40.9 | 196 | 49.2 |
| MAX | 74 | 299 | 172 | 141 | 193 | 138 | 96 | 276 | 93 | 79 | 1030 | 136 |
| MIN | 18 | 26 | 49 | 39 | 70 | 54 | 45 | 47 | 25 | 18 | 37 | 19 |
| CFSM | .56 | 1.18 | 1.53 | 1.62 | 2.21 | 1.91 | 1.30 | 2.18 | 1.02 | .86 | 4.12 | 1.03 |
| IN. | .65 | 1.31 | 1.76 | 1.87 | 2.31 | 2.20 | 1.45 | 2.53 | 1.14 | .99 | 4.74 | 1.15 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 40681 | MEAN | 111 | MAX | 1380 | MIN | 16 | CFSM | 2.33 | IN. | 31.79 |
| WTR YR 1985 | TOTAL | 28281 | MEAN | 77.5 | MAX | 1030 | MIN | 18 | CFSM | 1.63 | IN. | 22.10 |

## 02027800 BUFFALO RIVER NEAR TYE RIVER, VA

LOCATION.--Lat 37°36'20", long 78°55'25", Nelson County, Hydrologic Unit 02080203, on right bank 35 ft upstream from bridge on State Highway 657, 2.1 mi upstream from mouth, and 3.5 mi southeast of town of Tye River.

DRAINAGE AREA.--147 mi².

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 444.39 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-31 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 21-31 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--25 years, 170 ft³/s, 15.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s, Aug. 20, 1969, gage height, 27.95 ft, from floodmark, from rating curve extended above 1,800 ft³/s on basis of computation of flow over dam at gage height 11.03 ft and slope-area measurement at gage height 27.95 ft; minimum, 3.2 ft³/s, Sept. 8-13, 1966; minimum gage height, 0.28 ft, Sept. 9-13, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,400 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1445 | *1,550 | *6.22 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 36 ft³/s, Sept. 28-30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 242 | 83 | 169 | 119 | 384 | 174 | 154 | 106 | 141 | 75 | 68 | 149 |
| 2 | 149 | 83 | 151 | 119 | 688 | 173 | 145 | 106 | 126 | 85 | 95 | 121 |
| 3 | 104 | 81 | 143 | 217 | 393 | 166 | 143 | 195 | 121 | 73 | 73 | 107 |
| 4 | 92 | 80 | 130 | 432 | 273 | 163 | 142 | 153 | 112 | 70 | 63 | 96 |
| 5 | 85 | 102 | 128 | 332 | 231 | 163 | 137 | 131 | 112 | 64 | 58 | 86 |
| 6 | 82 | 97 | 211 | 261 | 214 | 155 | 133 | 124 | 117 | 59 | 56 | 80 |
| 7 | 80 | 86 | 174 | 230 | 198 | 150 | 130 | 117 | 107 | 63 | 60 | 74 |
| 8 | 81 | 83 | 150 | 206 | 174 | 149 | 134 | 114 | 111 | 59 | 117 | 70 |
| 9 | 82 | 82 | 138 | 189 | 168 | 152 | 128 | 109 | 101 | 53 | 88 | 66 |
| 10 | 81 | 83 | 130 | 177 | 160 | 147 | 126 | 106 | 97 | 55 | 69 | 62 |
| 11 | 80 | 88 | 125 | 171 | 166 | 145 | 124 | 107 | 124 | 55 | 61 | 59 |
| 12 | 80 | 85 | 119 | 163 | 573 | 146 | 123 | 108 | 109 | 86 | 56 | 55 |
| 13 | 78 | 79 | 114 | 152 | 386 | 138 | 122 | 236 | 91 | 97 | 53 | 54 |
| 14 | 77 | 76 | 110 | 154 | 278 | 136 | 121 | 137 | 83 | 108 | 51 | 50 |
| 15 | 76 | 76 | 106 | 141 | 240 | 136 | 122 | 112 | 83 | 69 | 49 | 49 |
| 16 | 78 | 77 | 105 | 147 | 217 | 132 | 145 | 116 | 85 | 122 | 45 | 49 |
| 17 | 79 | 76 | 105 | 153 | 205 | 134 | 144 | 137 | 109 | 74 | 56 | 48 |
| 18 | 78 | 75 | 103 | 152 | 195 | 130 | 124 | 140 | 90 | 61 | 762 | 46 |
| 19 | 79 | 138 | 102 | 141 | 190 | 125 | 120 | 117 | 81 | 53 | 461 | 45 |
| 20 | 78 | 124 | 101 | 131 | 184 | 123 | 116 | 109 | 76 | 50 | 280 | 44 |
| 21 | 76 | 98 | 123 | 129 | 177 | 123 | 113 | 106 | 73 | 48 | 537 | 44 |
| 22 | 83 | 92 | 140 | 128 | 173 | 132 | 109 | 103 | 70 | 46 | 301 | 43 |
| 23 | 149 | 89 | 120 | 124 | 171 | 196 | 107 | 286 | 69 | 43 | 210 | 47 |
| 24 | 147 | 89 | 112 | 120 | 170 | 179 | 107 | 332 | 66 | 42 | 212 | 46 |
| 25 | 110 | 88 | 109 | 116 | 169 | 173 | 146 | 370 | 64 | 49 | 636 | 43 |
| 26 | 98 | 86 | 102 | 114 | 192 | 164 | 119 | 252 | 61 | 108 | 591 | 41 |
| 27 | 92 | 83 | 100 | 112 | 186 | 162 | 110 | 207 | 58 | 79 | 360 | 40 |
| 28 | 89 | 140 | 102 | 111 | 176 | 157 | 141 | 182 | 56 | 74 | 281 | 37 |
| 29 | 88 | 317 | 102 | 110 | --- | 155 | 138 | 170 | 56 | 85 | 242 | 36 |
| 30 | 87 | 202 | 99 | 110 | --- | 155 | 112 | 157 | 56 | 74 | 224 | 36 |
| 31 | 85 | --- | 122 | 125 | --- | 150 | --- | 151 | --- | 72 | 207 | --- |
| TOTAL | 2965 | 3038 | 3845 | 5086 | 6931 | 4683 | 3835 | 4896 | 2705 | 2151 | 6422 | 1823 |
| MEAN | 95.6 | 101 | 124 | 164 | 248 | 151 | 128 | 158 | 90.2 | 69.4 | 207 | 60.8 |
| MAX | 242 | 317 | 211 | 432 | 688 | 196 | 154 | 370 | 141 | 122 | 762 | 149 |
| MIN | 76 | 75 | 99 | 110 | 160 | 123 | 107 | 103 | 56 | 42 | 45 | 36 |
| CFSM | .65 | .69 | .84 | 1.12 | 1.69 | 1.03 | .87 | 1.07 | .61 | .47 | 1.41 | .41 |
| IN. | .75 | .77 | .97 | 1.29 | 1.75 | 1.19 | .97 | 1.24 | .68 | .54 | 1.63 | .46 |

CAL YR 1984 TOTAL 86170 MEAN 235 MAX 3560 MIN 71 CFSM 1.60 IN. 21.81
WTR YR 1985 TOTAL 48380 MEAN 133 MAX 762 MIN 36 CFSM .90 IN. 12.24

## 02028500 ROCKFISH RIVER NEAR GREENFIELD, VA

LOCATION.--Lat 37°52'10", long 78°49'25", Nelson County, Hydrologic Unit 02080203, on left bank 50 ft downstream from bridge on State Highway 634, 2.8 mi downstream from confluence of North and South Forks, and 4.1 mi south of Greenfield.

DRAINAGE AREA.--94.6 mi$^2$.

PERIOD OF RECORD.--April 1943 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 530.29 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-29 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 22-29 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--42 years, 141 ft$^3$/s, 20.24 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,000 ft$^3$/s, Aug. 20, 1969, gage height, 31.2 ft, from floodmarks, from rating curve extended above 8,500 ft$^3$/s on basis of contracted-opening measurement at gage height 18.11 ft, slope-area measurements at gage heights 17.2 ft, 23.4 ft, and 31.2 ft, and peak runoff comparison with nearby stations; minimum, 0.20 ft$^3$/s, Sept. 8-12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.4 ft, from floodmarks, discharge, about 30,000 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1700 | *3,730 | *7.85 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 25 ft$^3$/s, July 9, gage height, 0.66 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 182 | 46 | 132 | 78 | 199 | 164 | 128 | 54 | 110 | 49 | 81 | 122 |
| 2 | 82 | 48 | 108 | 81 | 352 | 152 | 120 | 62 | 94 | 59 | 110 | 112 |
| 3 | 62 | 45 | 97 | 154 | 242 | 140 | 118 | 152 | 88 | 41 | 72 | 102 |
| 4 | 54 | 48 | 82 | 250 | 182 | 133 | 115 | 109 | 83 | 35 | 61 | 96 |
| 5 | 51 | 74 | 81 | 216 | 160 | 128 | 110 | 96 | 94 | 33 | 52 | 88 |
| 6 | 49 | 59 | 112 | 178 | 152 | 120 | 107 | 88 | 82 | 31 | 48 | 77 |
| 7 | 48 | 53 | 92 | 164 | 138 | 112 | 102 | 80 | 72 | 30 | 61 | 71 |
| 8 | 46 | 51 | 84 | 148 | 114 | 112 | 96 | 74 | 71 | 26 | 82 | 71 |
| 9 | 46 | 50 | 79 | 132 | 108 | 109 | 91 | 69 | 64 | 26 | 58 | 68 |
| 10 | 46 | 50 | 78 | 118 | 100 | 102 | 86 | 65 | 57 | 29 | 48 | 62 |
| 11 | 46 | 51 | 78 | 114 | 105 | 99 | 85 | 62 | 75 | 50 | 42 | 59 |
| 12 | 43 | 50 | 75 | 100 | 587 | 99 | 83 | 61 | 61 | 326 | 40 | 55 |
| 13 | 43 | 48 | 74 | 95 | 312 | 93 | 80 | 69 | 49 | 107 | 39 | 53 |
| 14 | 43 | 45 | 71 | 95 | 226 | 93 | 82 | 54 | 44 | 68 | 36 | 49 |
| 15 | 43 | 45 | 70 | 86 | 190 | 88 | 83 | 49 | 42 | 52 | 34 | 48 |
| 16 | 51 | 45 | 69 | 82 | 164 | 83 | 94 | 58 | 43 | 44 | 35 | 45 |
| 17 | 49 | 45 | 68 | 84 | 152 | 83 | 83 | 207 | 42 | 55 | 41 | 43 |
| 18 | 48 | 46 | 68 | 84 | 138 | 80 | 77 | 109 | 40 | 40 | 1560 | 42 |
| 19 | 46 | 84 | 66 | 81 | 134 | 77 | 75 | 85 | 37 | 36 | 955 | 42 |
| 20 | 46 | 69 | 65 | 68 | 131 | 75 | 72 | 69 | 35 | 34 | 718 | 40 |
| 21 | 45 | 59 | 79 | 68 | 123 | 75 | 71 | 62 | 34 | 32 | 691 | 40 |
| 22 | 45 | 56 | 84 | 69 | 123 | 83 | 68 | 61 | 33 | 31 | 432 | 40 |
| 23 | 59 | 53 | 74 | 70 | 130 | 168 | 65 | 206 | 34 | 30 | 310 | 41 |
| 24 | 76 | 54 | 70 | 69 | 144 | 140 | 64 | 385 | 42 | 26 | 250 | 41 |
| 25 | 60 | 53 | 69 | 67 | 154 | 131 | 88 | 527 | 33 | 102 | 307 | 38 |
| 26 | 56 | 52 | 66 | 66 | 192 | 123 | 66 | 323 | 30 | 147 | 318 | 37 |
| 27 | 52 | 51 | 66 | 64 | 182 | 120 | 61 | 238 | 27 | 93 | 264 | 37 |
| 28 | 50 | 180 | 66 | 62 | 172 | 117 | 64 | 188 | 27 | 75 | 216 | 34 |
| 29 | 53 | 274 | 66 | 60 | --- | 130 | 65 | 158 | 29 | 68 | 182 | 34 |
| 30 | 50 | 164 | 68 | 59 | --- | 134 | 55 | 136 | 31 | 57 | 156 | 34 |
| 31 | 48 | --- | 82 | 66 | --- | 123 | --- | 125 | --- | 49 | 136 | --- |
| TOTAL | 1718 | 2048 | 2439 | 3128 | 5106 | 3486 | 2554 | 4081 | 1603 | 1881 | 7435 | 1721 |
| MEAN | 55.4 | 68.3 | 78.7 | 101 | 182 | 112 | 85.1 | 132 | 53.4 | 60.7 | 240 | 57.4 |
| MAX | 182 | 274 | 132 | 250 | 587 | 168 | 128 | 527 | 110 | 326 | 1560 | 122 |
| MIN | 43 | 45 | 65 | 59 | 100 | 75 | 55 | 49 | 27 | 26 | 34 | 34 |
| CFSM | .59 | .72 | .83 | 1.07 | 1.92 | 1.18 | .90 | 1.40 | .56 | .64 | 2.54 | .61 |
| IN. | .68 | .81 | .96 | 1.23 | 2.01 | 1.37 | 1.00 | 1.60 | .63 | .74 | 2.92 | .68 |

CAL YR 1984 TOTAL 73837 MEAN 202 MAX 2280 MIN 38 CFSM 2.14 IN. 29.04
WTR YR 1985 TOTAL 37200 MEAN 102 MAX 1560 MIN 26 CFSM 1.08 IN. 14.63

## 02029000 JAMES RIVER AT SCOTTSVILLE, VA

**LOCATION.**--Lat 37°47'50", long 78°29'30", Albemarle County, Hydrologic Unit 02080203, on left bank 900 ft downstream from bridge on State Highway 20 at Scottsville, 6.8 mi upstream from Hardware River, and at mile 188.6.

**DRAINAGE AREA.**--4,584 mi$^2$.

**PERIOD OF RECORD.**--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 727: 1931(m). WSP 972: 1936(M), 1940(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 253.18 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1928, nonrecording gage at same site and datum.

**REMARKS.**--No estimated daily discharges. Records good. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 197.5 mi upstream; since October 1984 by Back Creek Lake 225.5 mi upstream; and since January 1985 by Little Back Creek Lake 228.6 mi upstream, amount unknown. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--61 years, 5,158 ft$^3$/s, 15.28 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 301,000 ft$^3$/s, June 22, 1972, gage height, 34.02 ft, from floodmarks, from rating curve extended above 120,000 ft$^3$/s on basis of slope-conveyance study; minimum daily, 300 ft$^3$/s, Sept. 13, 1966.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in October 1870 reached a stage of 30.7 ft, discharge, about 215,000 ft$^3$/s, and flood in November 1877 reached a stage of 27.9 ft, discharge, about 160,000 ft$^3$/s, from information by local resident. Flood in March 1913 reached a stage of 25.16 ft, from floodmarks, discharge, 121,000 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 35,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0115 | *29,200 | *13.03 | No peak equal to or greater than base discharge. | | | |

Minimum discharge, 784 ft$^3$/s, July 25; minimum daily, 845 ft$^3$/s, July 25; minimum gage height, 2.67 ft, Sept. 26, 27.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2340 | 3390 | 12200 | 4490 | 4180 | 11500 | 5020 | 2790 | 4160 | 1210 | 2000 | 2710 |
| 2 | 3810 | 2730 | 8660 | 4470 | 13300 | 9240 | 4940 | 2460 | 3490 | 1350 | 1860 | 2940 |
| 3 | 2920 | 2600 | 7220 | 5810 | 25200 | 7720 | 4870 | 3060 | 3450 | 1460 | 2080 | 2560 |
| 4 | 2750 | 2180 | 5690 | 9550 | 18700 | 6940 | 4380 | 3670 | 3460 | 1670 | 1880 | 2530 |
| 5 | 2560 | 2330 | 5040 | 16300 | 12800 | 6310 | 4210 | 7330 | 3080 | 1260 | 2050 | 2650 |
| 6 | 1860 | 2830 | 5100 | 15100 | 10200 | 5580 | 3920 | 7740 | 3160 | 1480 | 2080 | 1750 |
| 7 | 1780 | 3050 | 5100 | 13000 | 8350 | 5150 | 3940 | 5790 | 2990 | 1420 | 1750 | 1800 |
| 8 | 1820 | 2980 | 4720 | 10200 | 7400 | 4420 | 3920 | 4710 | 2720 | 1340 | 1890 | 1870 |
| 9 | 1900 | 3060 | 4150 | 8420 | 6230 | 4400 | 4100 | 3700 | 2140 | 1220 | 2720 | 1750 |
| 10 | 1890 | 2800 | 3870 | 7560 | 5290 | 3850 | 3700 | 3130 | 2510 | 1190 | 2280 | 3780 |
| 11 | 1830 | 2310 | 4050 | 6440 | 4740 | 4060 | 3460 | 3140 | 3680 | 1200 | 1500 | 2200 |
| 12 | 1510 | 2460 | 3770 | 5550 | 9070 | 4240 | 3300 | 2460 | 2660 | 2950 | 1590 | 1810 |
| 13 | 1450 | 2720 | 3920 | 4990 | 14400 | 3750 | 3330 | 4150 | 2490 | 3890 | 2020 | 1380 |
| 14 | 1750 | 2380 | 4040 | 4450 | 13600 | 4360 | 2880 | 5330 | 2240 | 1930 | 1910 | 1460 |
| 15 | 1560 | 2120 | 4020 | 4420 | 9740 | 4810 | 3100 | 3720 | 1680 | 1810 | 1420 | 1460 |
| 16 | 1640 | 2230 | 3490 | 4010 | 7800 | 5070 | 3490 | 3630 | 1810 | 2100 | 1190 | 1420 |
| 17 | 1620 | 2320 | 3690 | 3840 | 6490 | 4050 | 3610 | 3830 | 2120 | 2080 | 1440 | 1400 |
| 18 | 1860 | 1730 | 3610 | 3660 | 5740 | 3960 | 3420 | 5460 | 2300 | 1950 | 8050 | 1340 |
| 19 | 1990 | 2320 | 3500 | 3620 | 5180 | 3880 | 3730 | 3710 | 2050 | 1290 | 20700 | 1280 |
| 20 | 1850 | 3100 | 3270 | 3200 | 5310 | 3910 | 3650 | 3520 | 1700 | 1140 | 23400 | 1010 |
| 21 | 1590 | 2810 | 3320 | 2800 | 4580 | 3380 | 3080 | 3560 | 1600 | 1180 | 17600 | 876 |
| 22 | 1660 | 3790 | 3620 | 2470 | 4570 | 3550 | 3290 | 2270 | 1440 | 1110 | 11200 | 1160 |
| 23 | 2660 | 3680 | 3940 | 2540 | 4580 | 3930 | 3400 | 3400 | 1290 | 1110 | 8290 | 1220 |
| 24 | 3640 | 3180 | 5700 | 2750 | 5220 | 4620 | 3040 | 4790 | 1500 | 1000 | 5870 | 1120 |
| 25 | 3190 | 2990 | 5760 | 3090 | 6620 | 5520 | 3150 | 11300 | 1510 | 845 | 6340 | 950 |
| 26 | 3340 | 2850 | 5060 | 3410 | 9040 | 6030 | 3200 | 18800 | 1350 | 1940 | 10500 | 862 |
| 27 | 2840 | 2690 | 5490 | 2830 | 12400 | 5990 | 3100 | 12600 | 1340 | 2120 | 8190 | 957 |
| 28 | 2400 | 2680 | 5860 | 2840 | 13500 | 5990 | 2790 | 8980 | 1280 | 2420 | 6800 | 967 |
| 29 | 2400 | 6420 | 5540 | 3060 | --- | 5100 | 3100 | 7890 | 1120 | 2340 | 5770 | 1010 |
| 30 | 2310 | 17500 | 5000 | 2590 | --- | 5180 | 3420 | 6240 | 1250 | 2790 | 4620 | 1030 |
| 31 | 2980 | --- | 4390 | 2450 | --- | 4640 | --- | 4900 | --- | 1790 | 3810 | --- |
| TOTAL | 69700 | 100230 | 152790 | 169910 | 254230 | 161130 | 108540 | 168060 | 67570 | 52585 | 172800 | 49252 |
| MEAN | 2248 | 3341 | 4929 | 5481 | 9080 | 5198 | 3618 | 5421 | 2252 | 1696 | 5574 | 1642 |
| MAX | 3810 | 17500 | 12200 | 16300 | 25200 | 11500 | 5020 | 18800 | 4160 | 3890 | 23400 | 3780 |
| MIN | 1450 | 1730 | 3270 | 2450 | 4180 | 3380 | 2790 | 2270 | 1120 | 845 | 1190 | 862 |
| (*) | -46 | +277 | +166 | +78 | +126 | +3 | -3 | +8 | -72 | -158 | -122 | -188 |
| MEAN† | 2202 | 3618 | 5095 | 5559 | 9206 | 5201 | 3615 | 5429 | 2180 | 1538 | 5452 | 1454 |
| CFSM† | .48 | .79 | 1.11 | 1.21 | 2.01 | 1.13 | .79 | 1.18 | .48 | .34 | 1.19 | .32 |
| IN.† | .55 | .88 | 1.28 | 1.40 | 2.09 | 1.31 | .88 | 1.37 | .53 | .39 | 1.37 | .35 |

CAL YR 1984 TOTAL 2561010 MEAN 6997 MAX 60900 MIN 1450 MEAN† 7018 CFSM† 1.53 IN.† 20.84
WTR YR 1985 TOTAL 1526797 MEAN 4183 MAX 25200 MIN 845 MEAN† 4188 CFSM† .91 IN.† 12.41

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake, provided by U.S. Army Corps of Engineers; and for the initial storage in Back Creek Lake, provided by Virginia Power.

† Adjusted for change in contents.

## 02030000 HARDWARE RIVER BELOW BRIERY RUN, NEAR SCOTTSVILLE, VA

LOCATION.--Lat 37°48'45", long 78°27'20", Fluvanna County, Hydrologic Unit 02080203, on left bank 75 ft upstream from bridge on State Highway 637, 0.8 mi downstream from Briery Run, 2.4 mi northeast of Scottsville, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--116 mi$^2$.

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 952: 1941(M). WSP 1002: 1940, 1943. WSP 1032: 1940, 1944.

GAGE.--Water-stage recorder. Datum of gage is 294.96 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 15 to Apr. 14. Records good except those for period of no gage-height record, Jan. 15 to Apr. 14, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--47 years, 128 ft$^3$/s, 14.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,000 ft$^3$/s, Aug. 20, 1969, gage height, 31.0 ft, from floodmarks, from rating curve extended above 18,000 ft$^3$/s on basis of slope-area measurements at gage heights 23.8 ft and 31.0 ft; minimum, 0.10 ft$^3$/s, Sept. 5-8, 1966; minimum gage height, 0.81 ft, Sept. 8, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | Unknown | 1,790 | a9.68 | Aug. 19 | 0430 | *2,640 | *11.45 |

a From high-water mark.

Minimum discharge, 23 ft$^3$/s, July 24-25, gage height, 1.61 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 168 | 57 | 95 | 73 | 235 | 118 | 130 | 64 | 76 | 46 | 56 | 64 |
| 2 | 106 | 56 | 82 | 73 | 420 | 110 | 120 | 64 | 67 | 51 | 82 | 62 |
| 3 | 75 | 55 | 80 | 178 | 270 | 105 | 115 | 156 | 66 | 44 | 52 | 59 |
| 4 | 65 | 53 | 73 | 299 | 200 | 100 | 110 | 99 | 64 | 38 | 41 | 55 |
| 5 | 61 | 67 | 73 | 250 | 170 | 98 | 100 | 78 | 68 | 35 | 36 | 52 |
| 6 | 58 | 67 | 147 | 184 | 140 | 97 | 98 | 71 | 69 | 33 | 35 | 50 |
| 7 | 57 | 57 | 120 | 154 | 125 | 92 | 95 | 67 | 62 | 33 | 37 | 47 |
| 8 | 57 | 56 | 93 | 132 | 110 | 92 | 93 | 63 | 64 | 30 | 68 | 45 |
| 9 | 58 | 56 | 85 | 117 | 105 | 91 | 91 | 61 | 61 | 28 | 56 | 43 |
| 10 | 57 | 56 | 80 | 111 | 100 | 90 | 89 | 60 | 58 | 33 | 41 | 41 |
| 11 | 57 | 63 | 77 | 107 | 130 | 85 | 88 | 59 | 72 | 39 | 36 | 39 |
| 12 | 56 | 63 | 73 | 101 | 700 | 83 | 86 | 58 | 62 | 259 | 34 | 38 |
| 13 | 65 | 55 | 70 | 99 | 370 | 82 | 85 | 63 | 53 | 107 | 31 | 35 |
| 14 | 55 | 52 | 68 | 97 | 250 | 80 | 83 | 59 | 48 | 58 | 30 | 34 |
| 15 | 53 | 52 | 66 | 93 | 200 | 79 | 82 | 54 | 48 | 46 | 28 | 34 |
| 16 | 59 | 53 | 64 | 94 | 180 | 77 | 82 | 61 | 50 | 40 | 36 | 34 |
| 17 | 61 | 52 | 65 | 98 | 160 | 76 | 81 | 248 | 51 | 36 | 81 | 33 |
| 18 | 57 | 53 | 63 | 100 | 145 | 74 | 77 | 137 | 47 | 33 | 1010 | 33 |
| 19 | 56 | 98 | 63 | 98 | 140 | 73 | 76 | 83 | 44 | 31 | 1350 | 31 |
| 20 | 56 | 89 | 62 | 84 | 135 | 72 | 74 | 71 | 40 | 30 | 252 | 31 |
| 21 | 55 | 67 | 90 | 80 | 130 | 72 | 74 | 65 | 38 | 28 | 427 | 30 |
| 22 | 55 | 62 | 92 | 79 | 130 | 100 | 73 | 62 | 38 | 28 | 195 | 31 |
| 23 | 95 | 59 | 75 | 79 | 135 | 175 | 71 | 190 | 37 | 26 | 133 | 37 |
| 24 | 111 | 58 | 70 | 76 | 140 | 150 | 70 | 261 | 39 | 24 | 109 | 34 |
| 25 | 79 | 57 | 68 | 74 | 160 | 135 | 108 | 329 | 37 | 32 | 140 | 31 |
| 26 | 69 | 56 | 62 | 72 | 180 | 130 | 80 | 157 | 33 | 74 | 163 | 29 |
| 27 | 65 | 56 | 63 | 69 | 160 | 125 | 72 | 112 | 32 | 73 | 117 | 39 |
| 28 | 61 | 106 | 63 | 65 | 130 | 122 | 71 | 96 | 31 | 65 | 95 | 32 |
| 29 | 63 | 300 | 62 | 64 | --- | 130 | 74 | 92 | 32 | 48 | 84 | 28 |
| 30 | 61 | 123 | 62 | 62 | --- | 140 | 67 | 82 | 32 | 42 | 76 | 28 |
| 31 | 57 | --- | 77 | 88 | --- | 130 | --- | 79 | --- | 37 | 70 | --- |
| TOTAL | 2108 | 2154 | 2383 | 3350 | 5450 | 3183 | 2615 | 3201 | 1519 | 1527 | 5001 | 1179 |
| MEAN | 68.0 | 71.8 | 76.9 | 108 | 195 | 103 | 87.2 | 103 | 50.6 | 49.3 | 161 | 39.3 |
| MAX | 168 | 300 | 147 | 299 | 700 | 175 | 130 | 329 | 76 | 259 | 1350 | 64 |
| MIN | 53 | 52 | 62 | 62 | 100 | 72 | 67 | 54 | 31 | 24 | 28 | 28 |
| CFSM | .59 | .62 | .66 | .93 | 1.68 | .89 | .75 | .89 | .44 | .42 | 1.39 | .34 |
| IN. | .68 | .69 | .76 | 1.07 | 1.75 | 1.02 | .84 | 1.03 | .49 | .49 | 1.60 | .38 |

CAL YR 1984 TOTAL 74338 MEAN 203 MAX 3400 MIN 49 CFSM 1.75 IN. 23.84
WTR YR 1985 TOTAL 33670 MEAN 92.2 MAX 1350 MIN 24 CFSM .79 IN. 10.80

## 02030500 SLATE RIVER NEAR ARVONIA, VA

**LOCATION.**--Lat 37°42'10", long 78°22'40", Buckingham County, Hydrologic Unit 02080203, on left bank 250 ft upstream from bridge on State Highway 676, 1.8 mi northwest of Arvonia, 2.9 mi upstream from Hunts Creek, and 3.8 mi upstream from mouth.

**DRAINAGE AREA.**--226 mi$^2$.

**PERIOD OF RECORD.**--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 972: 1928-29, 1932, 1933-34(M), 1935. WSP 2104: 1928(M), 1935-37(M), 1940(M), 1944(M), 1949(M), 1955(M), drainage area. WDR VA-72-1: 1935, 1937, 1944, 1949, 1971(M).

**GAGE.**--Water-stage recorder. Datum of gage is 238.78 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Feb. 15, 1936, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 21-23, 25-31. Records good except those for periods with ice effect, Jan. 21-23, 25-31, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--59 years, 230 ft$^3$/s, 13.82 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 42,200 ft$^3$/s, June 22, 1972, gage height, 25.10 ft, from high-water mark in gage house, from rating curve extended above 5,900 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 2.0 ft$^3$/s, Sept. 28 to Oct. 2, 1930; minimum gage height, 1.35 ft, Sept. 12, 1966.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,100 ft$^3$/s and maximum (*)

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 2000 | *4,940 | *12.19 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 31 ft$^3$/s, July 10, gage height, 2.25 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 186 | 85 | 169 | 147 | 704 | 151 | 131 | 77 | 77 | 44 | 228 | 140 |
| 2 | 211 | 83 | 136 | 135 | 1720 | 147 | 128 | 75 | 71 | 49 | 207 | 113 |
| 3 | 110 | 77 | 127 | 223 | 878 | 142 | 118 | 141 | 65 | 51 | 112 | 102 |
| 4 | 84 | 74 | 126 | 714 | 389 | 136 | 115 | 177 | 62 | 47 | 73 | 93 |
| 5 | 76 | 80 | 118 | 571 | 271 | 137 | 113 | 116 | 157 | 50 | 58 | 86 |
| 6 | 71 | 89 | 335 | 420 | 231 | 133 | 110 | 94 | 142 | 45 | 51 | 80 |
| 7 | 69 | 82 | 314 | 278 | 205 | 124 | 107 | 84 | 110 | 41 | 51 | 76 |
| 8 | 70 | 76 | 199 | 215 | 178 | 124 | 105 | 77 | 87 | 38 | 164 | 72 |
| 9 | 70 | 74 | 158 | 177 | 153 | 130 | 106 | 73 | 86 | 34 | 257 | 70 |
| 10 | 70 | 74 | 139 | 155 | 160 | 129 | 102 | 69 | 78 | 31 | 123 | 68 |
| 11 | 68 | 80 | 131 | 146 | 157 | 123 | 101 | 69 | 499 | 33 | 79 | 66 |
| 12 | 68 | 87 | 123 | 140 | 941 | 124 | 103 | 74 | 260 | 428 | 64 | 62 |
| 13 | 67 | 82 | 118 | 132 | 829 | 121 | 102 | 134 | 133 | 886 | 54 | 59 |
| 14 | 66 | 75 | 114 | 128 | 361 | 116 | 102 | 146 | 92 | 204 | 49 | 55 |
| 15 | 66 | 73 | 109 | 126 | 259 | 116 | 106 | 96 | 76 | 115 | 44 | 55 |
| 16 | 71 | 73 | 109 | 115 | 214 | 113 | 113 | 81 | 71 | 81 | 40 | 55 |
| 17 | 74 | 73 | 110 | 124 | 191 | 112 | 124 | 128 | 114 | 155 | 79 | 55 |
| 18 | 72 | 71 | 108 | 128 | 177 | 112 | 111 | 166 | 108 | 132 | 1920 | 55 |
| 19 | 72 | 103 | 106 | 130 | 168 | 108 | 103 | 115 | 79 | 69 | 3910 | 54 |
| 20 | 72 | 141 | 106 | 130 | 163 | 107 | 99 | 85 | 65 | 54 | 1110 | 53 |
| 21 | 71 | 107 | 125 | 75 | 153 | 108 | 100 | 74 | 58 | 47 | 1270 | 52 |
| 22 | 71 | 88 | 203 | 116 | 148 | 117 | 94 | 73 | 53 | 44 | 624 | 52 |
| 23 | 228 | 82 | 171 | 112 | 148 | 240 | 90 | 93 | 50 | 40 | 279 | 61 |
| 24 | 356 | 80 | 139 | 110 | 147 | 262 | 87 | 193 | 50 | 36 | 181 | 70 |
| 25 | 188 | 79 | 127 | 105 | 146 | 193 | 89 | 627 | 50 | 39 | 423 | 63 |
| 26 | 128 | 77 | 118 | 118 | 171 | 159 | 94 | 271 | 45 | 98 | 862 | 58 |
| 27 | 109 | 76 | 111 | 110 | 206 | 143 | 87 | 151 | 42 | 112 | 418 | 76 |
| 28 | 99 | 107 | 109 | 108 | 169 | 136 | 84 | 111 | 39 | 106 | 263 | 83 |
| 29 | 94 | 510 | 109 | 100 | --- | 136 | 84 | 95 | 40 | 100 | 178 | 62 |
| 30 | 91 | 265 | 108 | 98 | --- | 144 | 81 | 85 | 41 | 120 | 142 | 53 |
| 31 | 86 | --- | 122 | 128 | --- | 133 | --- | 80 | --- | 83 | 169 | --- |
| TOTAL | 3234 | 3123 | 4397 | 5514 | 9637 | 4276 | 3089 | 3930 | 2900 | 3412 | 13482 | 2099 |
| MEAN | 104 | 104 | 142 | 178 | 344 | 138 | 103 | 127 | 96.7 | 110 | 435 | 70.0 |
| MAX | 356 | 510 | 335 | 714 | 1720 | 262 | 131 | 627 | 499 | 886 | 3910 | 140 |
| MIN | 66 | 71 | 106 | 75 | 146 | 107 | 81 | 69 | 39 | 31 | 40 | 52 |
| CFSM | .46 | .46 | .63 | .79 | 1.52 | .61 | .46 | .56 | .43 | .49 | 1.92 | .31 |
| IN. | .53 | .51 | .72 | .91 | 1.59 | .70 | .51 | .65 | .48 | .56 | 2.22 | .35 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 102606 | MEAN | 280 | MAX | 5480 | MIN | 48 | CFSM | 1.24 | IN. | 16.89 |
| WTR YR 1985 | TOTAL | 59093 | MEAN | 162 | MAX | 3910 | MIN | 31 | CFSM | .72 | IN. | 9.73 |

## 02031000 MECHUMS RIVER NEAR WHITE HALL, VA

LOCATION.--Lat 38°06'09", long 78°35'35", Albemarle County, Hydrologic Unit 02080204, on right bank 20 ft downstream from bridge on State Highway 614, 1.5 mi downstream from Rocky Run, 4.0 mi southeast of White Hall, and 4.9 mi upstream from confluence with Moormans River.

DRAINAGE AREA.--95.4 mi$^2$.

PERIOD OF RECORD.--October 1942 to September 1951, October 1979 to current year. Prior to September 1951, published as Mechum River near Ivy.

GAGE.--Water-stage recorder. Datum of gage is 429.75 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1942, to Sept. 30, 1951, on right bank 20 ft downstream from former highway bridge at different datum.

REMARKS.--Estimated daily discharges: Nov. 29, Jan. 22-31, Feb. 9, 10, 17-24, and Aug. 26. Records good except those for periods of doubtful gage-height record, Nov. 29, Feb. 17-24, and Aug. 26, and periods with ice effect, Jan. 22-31 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--15 years, 108 ft$^3$/s, 15.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft$^3$/s, Oct. 15, 1942, gage height, 30.3 ft, datum then in use, from floodmarks, from rating curve extended above 8,000 ft$^3$/s; minimum, 0.6 ft$^3$/s, Sept. 9, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 6, 1979, reached a stage of 24.5 ft, from floodmarks, discharge, about 13,500 ft$^3$/s, from rating curve extended above 8,300 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1200 | *1,740 | *9.89 | Aug. 18 | 2030 | 1,600 | 9.60 |

Minimum discharge, 12 ft$^3$/s, Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 112 | 42 | 94 | 73 | 188 | 91 | 96 | 52 | 58 | 38 | 34 | 57 |
| 2 | 68 | 42 | 84 | 71 | 383 | 91 | 87 | 52 | 49 | 57 | 45 | 53 |
| 3 | 51 | 40 | 78 | 108 | 224 | 89 | 85 | 94 | 46 | 42 | 31 | 48 |
| 4 | 45 | 40 | 72 | 220 | 149 | 87 | 84 | 72 | 49 | 35 | 26 | 44 |
| 5 | 40 | 60 | 70 | 178 | 126 | 86 | 82 | 63 | 67 | 29 | 23 | 40 |
| 6 | 39 | 54 | 101 | 142 | 113 | 81 | 78 | 59 | 57 | 27 | 20 | 38 |
| 7 | 37 | 45 | 96 | 120 | 106 | 78 | 75 | 55 | 51 | 26 | 23 | 34 |
| 8 | 37 | 42 | 85 | 108 | 94 | 78 | 74 | 53 | 53 | 21 | 34 | 31 |
| 9 | 38 | 41 | 79 | 96 | 90 | 80 | 71 | 51 | 47 | 22 | 29 | 28 |
| 10 | 37 | 41 | 76 | 90 | 88 | 78 | 70 | 48 | 46 | 25 | 23 | 27 |
| 11 | 36 | 44 | 74 | 87 | 84 | 77 | 70 | 47 | 116 | 30 | 20 | 27 |
| 12 | 34 | 41 | 70 | 82 | 837 | 78 | 69 | 47 | 68 | 111 | 18 | 25 |
| 13 | 34 | 37 | 70 | 77 | 347 | 72 | 67 | 58 | 52 | 62 | 17 | 22 |
| 14 | 34 | 36 | 69 | 77 | 198 | 72 | 69 | 50 | 43 | 42 | 16 | 21 |
| 15 | 33 | 37 | 67 | 72 | 158 | 70 | 71 | 43 | 41 | 34 | 15 | 21 |
| 16 | 40 | 37 | 65 | 71 | 141 | 70 | 74 | 45 | 43 | 28 | 14 | 21 |
| 17 | 41 | 37 | 65 | 74 | 125 | 70 | 70 | 106 | 42 | 24 | 16 | 20 |
| 18 | 37 | 38 | 64 | 73 | 115 | 68 | 65 | 78 | 42 | 21 | 474 | 19 |
| 19 | 37 | 73 | 64 | 71 | 110 | 66 | 64 | 59 | 37 | 18 | 347 | 18 |
| 20 | 36 | 74 | 61 | 62 | 105 | 66 | 63 | 50 | 40 | 16 | 208 | 18 |
| 21 | 36 | 54 | 70 | 60 | 100 | 65 | 61 | 45 | 33 | 15 | 362 | 17 |
| 22 | 37 | 50 | 78 | 60 | 98 | 69 | 60 | 44 | 31 | 14 | 148 | 16 |
| 23 | 55 | 47 | 69 | 57 | 97 | 145 | 59 | 88 | 28 | 14 | 104 | 19 |
| 24 | 82 | 47 | 67 | 56 | 94 | 126 | 57 | 178 | 37 | 14 | 84 | 20 |
| 25 | 58 | 46 | 67 | 55 | 92 | 112 | 83 | 291 | 30 | 30 | 92 | 18 |
| 26 | 45 | 43 | 63 | 53 | 101 | 103 | 65 | 137 | 27 | 57 | 160 | 15 |
| 27 | 45 | 42 | 62 | 51 | 98 | 100 | 59 | 101 | 26 | 45 | 116 | 18 |
| 28 | 43 | 98 | 62 | 51 | 93 | 96 | 58 | 81 | 26 | 40 | 99 | 14 |
| 29 | 65 | 267 | 64 | 50 | --- | 95 | 60 | 71 | 27 | 27 | 84 | 12 |
| 30 | 51 | 117 | 61 | 50 | --- | 101 | 53 | 64 | 26 | 26 | 73 | 13 |
| 31 | 46 | --- | 70 | 64 | --- | 92 | --- | 60 | --- | 30 | 64 | --- |
| TOTAL | 1433 | 1712 | 2237 | 2559 | 4554 | 2652 | 2099 | 2342 | 1338 | 1020 | 2819 | 774 |
| MEAN | 46.2 | 57.1 | 72.2 | 82.5 | 163 | 85.5 | 70.0 | 75.5 | 44.6 | 32.9 | 90.9 | 25.8 |
| MAX | 112 | 267 | 101 | 220 | 837 | 145 | 96 | 291 | 116 | 111 | 474 | 57 |
| MIN | 33 | 36 | 61 | 50 | 84 | 65 | 53 | 43 | 26 | 14 | 14 | 12 |
| CFSM | .48 | .60 | .76 | .86 | 1.71 | .90 | .73 | .79 | .47 | .34 | .95 | .27 |
| IN. | .56 | .67 | .87 | 1.00 | 1.78 | 1.03 | .82 | .91 | .52 | .40 | 1.10 | .30 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 54850 | MEAN | 150 | MAX | 3090 | MIN | 26 | CFSM 1.57 | IN. | 21.39 |
| WTR YR 1985 | TOTAL | 25539 | MEAN | 70.0 | MAX | 837 | MIN | 12 | CFSM .73 | IN. | 9.96 |

## 02032250 MOORMANS RIVER NEAR FREE UNION, VA

**LOCATION.**--Lat 38°08'26", long 78°33'22", Albemarle County, Hydrologic Unit 02080204, on right bank 130 ft upstream from bridge on State Highway 601, 0.4 mi upstream from confluence with Mechums River, 0.8 mi downstream from Wards Creek, and 1.1 mi southeast of Free Union.

**DRAINAGE AREA.**--74.6 $mi^2$.

**PERIOD OF RECORD.**--October 1979 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 403.11 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 17-29 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 17-29 and Feb. 9, 10, which are fair. Flow regulated by Rivanna Water and Sewer Authority at Sugar Hollow Reservoir 12.0 mi upstream from station, capacity, 1,320 acre-ft, from which an average of 7.1 $ft^3/s$ is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--6 years, 96.2 $ft^3/s$, 17.51 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 5,670 $ft^3/s$, Apr. 3, 1983, Feb. 14, 1984, gage height, 15.48 ft, from rating curve extended above 2,700 $ft^3/s$; minimum, 1.3 $ft^3/s$, Sept. 16, 17, 1980.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of June 21, 1972, reached a stage of 20.2 ft, from floodmarks, discharge, about 8,800 $ft^3/s$, and flood of Sept. 6, 1979, reached a stage of 21.55 ft, from floodmarks, discharge, about 9,700 $ft^3/s$, from rating curve extended above 2,700 $ft^3/s$.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 700 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 0900 | 1,080 | 6.67 | Aug. 21 | 0030 | 1,180 | 6.88 |
| Aug. 18 | 2030 | *1,190 | *6.91 | | | | |

Minimum discharge, 3.5 $ft^3/s$, July 23-25, Aug. 13, 14, 15, 16, gage height, 2.80 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45 | 17 | 62 | 37 | 103 | 107 | 92 | 26 | 35 | 8.4 | 8.1 | 31 |
| 2 | 24 | 16 | 46 | 40 | 273 | 99 | 84 | 27 | 27 | 18 | 10 | 26 |
| 3 | 15 | 15 | 42 | 84 | 162 | 88 | 82 | 62 | 23 | 15 | 8.7 | 22 |
| 4 | 13 | 15 | 36 | 175 | 120 | 78 | 82 | 43 | 26 | 12 | 6.5 | 18 |
| 5 | 11 | 23 | 34 | 160 | 101 | 74 | 76 | 35 | 62 | 10 | 5.5 | 17 |
| 6 | 10 | 21 | 60 | 133 | 88 | 60 | 71 | 32 | 37 | 9.0 | 5.0 | 15 |
| 7 | 10 | 18 | 53 | 120 | 76 | 55 | 60 | 30 | 28 | 8.4 | 4.8 | 13 |
| 8 | 10 | 16 | 43 | 109 | 55 | 55 | 56 | 28 | 28 | 7.5 | 5.8 | 10 |
| 9 | 10 | 16 | 38 | 90 | 50 | 53 | 55 | 26 | 25 | 6.8 | 5.0 | 10 |
| 10 | 10 | 16 | 36 | 76 | 48 | 45 | 45 | 23 | 34 | 7.8 | 4.7 | 9.3 |
| 11 | 10 | 16 | 34 | 73 | 46 | 45 | 45 | 22 | 86 | 9.3 | 4.4 | 8.4 |
| 12 | 10 | 16 | 34 | 69 | 623 | 51 | 40 | 25 | 50 | 29 | 4.1 | 7.8 |
| 13 | 10 | 14 | 33 | 53 | 331 | 43 | 39 | 28 | 36 | 24 | 4.0 | 9.0 |
| 14 | 9.3 | 14 | 32 | 50 | 194 | 41 | 40 | 22 | 28 | 15 | 3.8 | 9.0 |
| 15 | 9.0 | 14 | 30 | 50 | 147 | 41 | 42 | 20 | 23 | 11 | 3.8 | 8.1 |
| 16 | 10 | 14 | 30 | 37 | 120 | 37 | 45 | 22 | 23 | 9.0 | 4.0 | 9.9 |
| 17 | 11 | 14 | 32 | 36 | 103 | 37 | 43 | 71 | 22 | 7.5 | 5.0 | 7.5 |
| 18 | 11 | 14 | 33 | 39 | 90 | 36 | 38 | 40 | 21 | 6.2 | 354 | 6.5 |
| 19 | 11 | 31 | 32 | 38 | 78 | 34 | 37 | 30 | 17 | 5.8 | 414 | 6.5 |
| 20 | 10 | 31 | 32 | 37 | 76 | 35 | 34 | 24 | 15 | 5.0 | 254 | 6.2 |
| 21 | 10 | 23 | 35 | 33 | 69 | 33 | 34 | 21 | 14 | 4.7 | 392 | 5.5 |
| 22 | 11 | 20 | 43 | 31 | 65 | 34 | 33 | 19 | 13 | 4.2 | 84 | 5.5 |
| 23 | 19 | 18 | 36 | 28 | 73 | 112 | 32 | 39 | 12 | 3.8 | 94 | 5.5 |
| 24 | 30 | 18 | 34 | 28 | 88 | 141 | 30 | 131 | 11 | 3.5 | 62 | 6.0 |
| 25 | 20 | 17 | 35 | 27 | 103 | 139 | 53 | 276 | 11 | 4.7 | 124 | 6.0 |
| 26 | 18 | 17 | 30 | 25 | 118 | 126 | 38 | 160 | 9.0 | 44 | 154 | 5.2 |
| 27 | 16 | 16 | 30 | 25 | 120 | 112 | 34 | 109 | 8.1 | 17 | 137 | 40 |
| 28 | 16 | 82 | 32 | 24 | 112 | 101 | 33 | 74 | 7.5 | 12 | 97 | 7.8 |
| 29 | 41 | 188 | 32 | 23 | --- | 99 | 32 | 51 | 7.8 | 9.0 | 69 | 4.8 |
| 30 | 23 | 88 | 30 | 23 | --- | 101 | 29 | 42 | 7.5 | 8.1 | 50 | 4.2 |
| 31 | 20 | --- | 33 | 29 | --- | 88 | --- | 37 | --- | 6.8 | 38 | --- |
| TOTAL | 483.3 | 838 | 1142 | 1802 | 3632 | 2200 | 1454 | 1595 | 746.9 | 342.5 | 2416.2 | 340.7 |
| MEAN | 15.6 | 27.9 | 36.8 | 58.1 | 130 | 71.0 | 48.5 | 51.5 | 24.9 | 11.0 | 77.9 | 11.4 |
| MAX | 45 | 188 | 62 | 175 | 623 | 141 | 92 | 276 | 86 | 44 | 414 | 40 |
| MIN | 9.0 | 14 | 30 | 23 | 46 | 33 | 29 | 19 | 7.5 | 3.5 | 3.8 | 4.2 |
| CFSM | .21 | .37 | .49 | .78 | 1.74 | .95 | .65 | .69 | .33 | .15 | 1.04 | .15 |
| IN. | .24 | .42 | .57 | .90 | 1.81 | 1.10 | .73 | .80 | .37 | .17 | 1.21 | .17 |

CAL YR 1984 TOTAL 45012.8 MEAN 123 MAX 2700 MIN 5.8 CFSM 1.65 IN. 22.46
WTR YR 1985 TOTAL 16992.6 MEAN 46.6 MAX 623 MIN 3.5 CFSM .62 IN. 8.40

## 02032400 BUCK MOUNTAIN CREEK NEAR FREE UNION, VA

LOCATION.--Lat 38°09'16", long 78°32'22", Albemarle County, Hydrologic Unit 02080204, on left bank at downstream side of bridge on State Highway 665, 0.2 mi downstream from Piney Creek, 1.6 mi east of Free Union, and 2.0 mi upstream from mouth.

DRAINAGE AREA.--37.0 mi².

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 408.71 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 20, Jan. 22-31, Feb. 9, 10, and July 17-25, 31. Records good except those for periods of doubtful gage-height record, Oct. 20 and July 17-25, 31, and periods with ice effect, Jan. 22-31 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--6 years, 42.3 ft³/s, 15.53 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,770 ft³/s, Apr. 2, 1983, gage height, 8.57 ft, from rating curve extended above 1,200 ft³/s; minimum, 0.60 ft³/s, Sept. 12, 1983, gage height, 0.42 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 22, 1979, reached a stage of 11.12 ft, from floodmarks, discharge, about 6,600 ft³/s, from rating curve extended above 1,200 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 0700 | *1,160 | *5.12 | Aug. 18 | 1645 | 659 | 4.01 |

Minimum discharge, 0.65 ft³/s, Aug. 15-16.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 46 | 13 | 36 | 22 | 87 | 33 | 31 | 9.7 | 14 | 3.2 | 3.5 | 5.6 |
| 2 | 23 | 13 | 29 | 29 | 173 | 33 | 29 | 11 | 9.7 | 7.8 | 4.2 | 4.9 |
| 3 | 15 | 11 | 27 | 54 | 82 | 31 | 28 | 28 | 8.4 | 5.4 | 2.9 | 4.2 |
| 4 | 12 | 12 | 23 | 104 | 52 | 30 | 27 | 17 | 9.1 | 4.1 | 1.8 | 3.4 |
| 5 | 11 | 21 | 23 | 74 | 42 | 29 | 26 | 14 | 20 | 3.8 | 1.4 | 2.7 |
| 6 | 10 | 16 | 43 | 57 | 39 | 27 | 24 | 12 | 13 | 3.7 | 1.3 | 2.2 |
| 7 | 9.9 | 13 | 36 | 49 | 35 | 27 | 24 | 10 | 10 | 3.4 | 1.4 | 1.8 |
| 8 | 10 | 12 | 29 | 41 | 31 | 28 | 23 | 9.3 | 13 | 3.2 | 2.1 | 1.6 |
| 9 | 10 | 12 | 27 | 35 | 29 | 28 | 22 | 8.3 | 8.3 | 3.5 | 2.1 | 1.6 |
| 10 | 9.6 | 12 | 24 | 32 | 28 | 27 | 21 | 7.7 | 10 | 4.7 | 1.7 | 1.3 |
| 11 | 9.3 | 13 | 24 | 30 | 28 | 27 | 21 | 7.3 | 22 | 4.6 | 1.2 | 1.2 |
| 12 | 8.7 | 12 | 22 | 27 | 471 | 30 | 21 | 10 | 15 | 19 | .96 | 1.5 |
| 13 | 8.6 | 10 | 21 | 28 | 131 | 29 | 19 | 14 | 8.4 | 12 | .87 | 1.1 |
| 14 | 7.9 | 9.5 | 20 | 24 | 78 | 29 | 18 | 7.8 | 6.4 | 8.3 | .79 | 1.2 |
| 15 | 7.9 | 9.6 | 19 | 22 | 59 | 28 | 20 | 6.1 | 6.1 | 5.7 | .72 | 1.1 |
| 16 | 9.6 | 9.9 | 19 | 23 | 48 | 27 | 21 | 8.3 | 6.7 | 4.5 | .96 | 1.2 |
| 17 | 9.5 | 9.5 | 19 | 22 | 42 | 27 | 19 | 45 | 6.7 | 3.5 | 1.9 | 1.4 |
| 18 | 9.1 | 10 | 18 | 22 | 38 | 27 | 17 | 21 | 6.1 | 3.0 | 195 | .91 |
| 19 | 9.0 | 30 | 18 | 21 | 36 | 26 | 17 | 15 | 4.8 | 2.6 | 74 | 1.1 |
| 20 | 9.3 | 23 | 18 | 19 | 34 | 26 | 15 | 11 | 3.6 | 2.3 | 67 | 1.0 |
| 21 | 8.7 | 18 | 24 | 15 | 32 | 25 | 15 | 8.9 | 3.4 | 2.1 | 58 | .78 |
| 22 | 8.8 | 16 | 25 | 17 | 31 | 28 | 14 | 8.5 | 3.2 | 2.0 | 24 | .81 |
| 23 | 20 | 15 | 21 | 16 | 31 | 54 | 13 | 26 | 3.0 | 1.8 | 15 | .92 |
| 24 | 25 | 14 | 20 | 15 | 33 | 41 | 13 | 73 | 5.2 | 1.7 | 11 | 1.1 |
| 25 | 15 | 13 | 20 | 15 | 34 | 35 | 23 | 72 | 2.9 | 2.5 | 35 | 1.1 |
| 26 | 14 | 13 | 18 | 14 | 39 | 31 | 16 | 38 | 2.3 | 10 | 47 | .90 |
| 27 | 12 | 12 | 18 | 14 | 38 | 29 | 14 | 28 | 2.2 | 7.0 | 30 | 1.8 |
| 28 | 19 | 78 | 18 | 14 | 35 | 28 | 13 | 22 | 2.2 | 5.1 | 19 | 1.1 |
| 29 | 33 | 102 | 17 | 13 | --- | 28 | 12 | 18 | 2.4 | 4.3 | 13 | .78 |
| 30 | 17 | 48 | 17 | 13 | --- | 31 | 11 | 16 | 2.7 | 4.1 | 9.6 | .70 |
| 31 | 14 | --- | 23 | 15 | --- | 28 | --- | 17 | --- | 3.8 | 7.6 | --- |
| TOTAL | 431.9 | 600.5 | 716 | 896 | 1836 | 927 | 507 | 599.9 | 230.8 | 152.7 | 635.00 | 51.00 |
| MEAN | 13.9 | 20.0 | 23.1 | 28.9 | 65.6 | 29.9 | 19.6 | 19.4 | 7.69 | 4.93 | 20.5 | 1.70 |
| MAX | 46 | 102 | 43 | 104 | 471 | 54 | 31 | 73 | 22 | 19 | 195 | 5.6 |
| MIN | 7.9 | 9.5 | 17 | 13 | 28 | 25 | 11 | 6.1 | 2.2 | 1.7 | .72 | .70 |
| CFSM | .38 | .54 | .62 | .78 | 1.77 | .81 | .53 | .52 | .21 | .13 | .55 | .05 |
| IN. | .43 | .60 | .72 | .90 | 1.84 | .93 | .59 | .60 | .23 | .15 | .64 | .05 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 20427.4 | MEAN | 55.8 | MAX | 1530 | MIN | 5.1 | CFSM | 1.51 | IN. 20.53 |
| WTR YR 1985 | TOTAL | 7663.80 | MEAN | 21.0 | MAX | 471 | MIN | .70 | CFSM | .57 | IN. 7.70 |

## 02032515 SOUTH FORK RIVANNA RIVER NEAR CHARLOTTESVILLE, VA

**LOCATION.**--Lat 38°06'06", long 78°27'39", Albemarle County, Hydrologic Unit 02080204, on left bank 10 ft downstream from upstream bridge on U.S. Highway 29, 0.4 mi downstream from South Fork Rivanna River dam, 2.5 mi northeast of Charlottesville city limits, and 2.9 mi upstream from mouth.

**DRAINAGE AREA.**--260 mi$^2$.

**PERIOD OF RECORD.**--August 1979 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 330 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Nov. 28, 29, Jan. 15-17, 25, 28, 29, and Feb. 10. Records good except those for periods of doubtful or no gage-height record, Nov. 28, 29 and Jan. 15-17, and periods with ice effect, Jan. 25, 28, 29 and Feb. 10, which are fair. Flow regulated by Rivanna Water and Sewer Authority at South Fork Rivanna and Sugar Hollow Reservoirs, combined capacity, 6,540 acre-ft, from which an average of 14.1 ft$^3$/s is diverted for industrial and municipal use. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--6 years, 296 ft$^3$/s, 15.46 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 15,200 ft$^3$/s, Sept. 6, 1979, gage height, 23.50 ft, from floodmarks, from rating curve extended above 12,000 ft$^3$/s; minimum daily, 11 ft$^3$/s, June 28-30, 1981.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 3,660 ft$^3$/s, Feb. 12, gage height, 10.24 ft; minimum, 13 ft$^3$/s, Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 260 | 112 | 257 | 172 | 368 | 264 | 248 | 106 | 160 | 51 | 80 | 118 |
| 2 | 222 | 108 | 218 | 178 | 1100 | 260 | 238 | 110 | 132 | 88 | 68 | 102 |
| 3 | 136 | 102 | 196 | 268 | 744 | 244 | 224 | 206 | 118 | 80 | 57 | 94 |
| 4 | 110 | 102 | 172 | 623 | 448 | 230 | 218 | 186 | 120 | 61 | 38 | 80 |
| 5 | 100 | 128 | 166 | 555 | 350 | 228 | 208 | 140 | 218 | 46 | 30 | 70 |
| 6 | 94 | 142 | 248 | 448 | 308 | 206 | 202 | 124 | 180 | 43 | 26 | 61 |
| 7 | 90 | 120 | 248 | 368 | 277 | 196 | 186 | 114 | 138 | 39 | 26 | 53 |
| 8 | 90 | 108 | 216 | 319 | 228 | 198 | 184 | 108 | 136 | 32 | 39 | 46 |
| 9 | 90 | 106 | 196 | 272 | 192 | 200 | 172 | 102 | 124 | 33 | 38 | 44 |
| 10 | 90 | 104 | 182 | 244 | 200 | 192 | 162 | 98 | 120 | 38 | 26 | 39 |
| 11 | 88 | 110 | 176 | 236 | 212 | 186 | 164 | 98 | 334 | 39 | 22 | 35 |
| 12 | 86 | 108 | 166 | 222 | 2110 | 198 | 160 | 102 | 212 | 250 | 19 | 32 |
| 13 | 84 | 100 | 162 | 212 | 1130 | 178 | 156 | 118 | 140 | 215 | 18 | 28 |
| 14 | 84 | 96 | 156 | 200 | 641 | 172 | 156 | 102 | 112 | 132 | 16 | 25 |
| 15 | 82 | 96 | 152 | 186 | 483 | 166 | 168 | 88 | 100 | 82 | 16 | 25 |
| 16 | 88 | 96 | 146 | 182 | 390 | 160 | 174 | 94 | 100 | 62 | 16 | 26 |
| 17 | 98 | 92 | 150 | 180 | 330 | 158 | 168 | 344 | 100 | 51 | 23 | 25 |
| 18 | 96 | 96 | 148 | 178 | 294 | 152 | 152 | 214 | 102 | 41 | 798 | 23 |
| 19 | 92 | 168 | 144 | 172 | 272 | 152 | 148 | 138 | 86 | 33 | 1310 | 21 |
| 20 | 92 | 200 | 144 | 154 | 260 | 152 | 140 | 110 | 80 | 32 | 520 | 21 |
| 21 | 92 | 150 | 158 | 86 | 244 | 146 | 136 | 98 | 70 | 26 | 1110 | 19 |
| 22 | 94 | 132 | 192 | 128 | 240 | 158 | 134 | 92 | 66 | 25 | 406 | 19 |
| 23 | 132 | 126 | 166 | 134 | 242 | 342 | 126 | 244 | 62 | 19 | 282 | 21 |
| 24 | 216 | 120 | 154 | 138 | 254 | 377 | 122 | 4[illegible] | 61 | 17 | 216 | 26 |
| 25 | 160 | 118 | 156 | 138 | 270 | 341 | 186 | 981 | 61 | 26 | 256 | 23 |
| 26 | 132 | 112 | 142 | 136 | 300 | 297 | 158 | 533 | 44 | 126 | 448 | 20 |
| 27 | 118 | 108 | 140 | 128 | 300 | 272 | 134 | 350 | 43 | 108 | 371 | 72 |
| 28 | 112 | 140 | 142 | 126 | 277 | 260 | 126 | 262 | 41 | 90 | 270 | 36 |
| 29 | 196 | 700 | 144 | 124 | --- | 252 | 124 | 212 | 43 | 59 | 210 | 18 |
| 30 | 156 | 350 | 140 | 122 | --- | 267 | 116 | 184 | 41 | 46 | 172 | 16 |
| 31 | 126 | --- | 158 | 152 | --- | 244 | --- | 168 | --- | 41 | 142 | --- |
| TOTAL | 3706 | 4350 | 5335 | 6781 | 12464 | 6848 | 4990 | 6306 | 3344 | 2031 | 7069 | 1238 |
| MEAN | 120 | 145 | 172 | 219 | 445 | 221 | 166 | 203 | 111 | 65.5 | 228 | 41.3 |
| MAX | 260 | 700 | 257 | 623 | 2110 | 377 | 248 | 981 | 334 | 250 | 1310 | 118 |
| MIN | 82 | 92 | 140 | 86 | 192 | 146 | 116 | 88 | 41 | 17 | 16 | 16 |
| *FT$^3$/S | 14.3 | 13.2 | 12.3 | 12.6 | 12.8 | 12.7 | 14.7 | 14.4 | 14.2 | 14.8 | 16.0 | 16.8 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 146434 | MEAN | 400 | MAX | 6390 | MIN | 53 | *FT$^3$/S | 13.6 |
| WTR YR 1985 | TOTAL | 64462 | MEAN | 177 | MAX | 2110 | MIN | 16 | *FT$^3$/S | 14.1 |

* Average diversion, in cubic feet per second, by city of Charlottesville; records were provided by Rivanna Water and Sewer Authority.

## 02032680 NORTH FORK RIVANNA RIVER NEAR PROFFIT, VA

**LOCATION.**--Lat 38°05'16", long 78°24'44", Albemarle County, Hydrologic Unit 02080204, on left bank 50 ft downstream from bridge on State Highway 649, 1.9 mi southeast of Proffit, and 2.2 mi upstream from confluence with South Fork.

**DRAINAGE AREA.**--176 $mi^2$.

**PERIOD OF RECORD.**--April 1970 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 323.43 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 22-31 and Feb. 9, 10. Records good except those periods with ice effect, Jan. 22-31 and Feb. 9, 10, which are fair. Rivanna Water and Sewer Authority diverts about 0.2 $ft^3/s$ daily for municipal water supply 7.8 mi upstream from station. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--15 years, 254 $ft^3/s$, 19.60 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 31,800 $ft^3/s$, June 21, 1972, gage height, 30.4 ft, from floodmarks, from rating curve extended above 9,000 $ft^3/s$; minimum, 1.8 $ft^3/s$, Oct. 6, 1977.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,500 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 1500 | *3,300 | *12.37 | Aug. 18 | 2330 | 2,890 | 11.57 |

Minimum discharge, 21 $ft^3/s$, Sept. 24, 25.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 157 | 84 | 225 | 142 | 335 | 159 | 140 | 76 | 115 | 45 | 41 | 67 |
| 2 | 138 | 84 | 187 | 156 | 780 | 154 | 128 | 76 | 86 | 57 | 41 | 64 |
| 3 | 94 | 80 | 171 | 254 | 450 | 146 | 123 | 120 | 85 | 58 | 35 | 60 |
| 4 | 82 | 74 | 156 | 491 | 285 | 141 | 120 | 105 | 74 | 44 | 32 | 56 |
| 5 | 71 | 92 | 151 | 373 | 239 | 138 | 116 | 79 | 92 | 44 | 29 | 54 |
| 6 | 68 | 92 | 247 | 318 | 223 | 129 | 113 | 82 | 118 | 43 | 28 | 51 |
| 7 | 68 | 82 | 231 | 270 | 199 | 122 | 107 | 79 | 105 | 40 | 29 | 45 |
| 8 | 68 | 78 | 189 | 235 | 161 | 122 | 109 | 76 | 98 | 36 | 34 | 43 |
| 9 | 70 | 76 | 169 | 205 | 135 | 123 | 106 | 63 | 89 | 36 | 32 | 42 |
| 10 | 68 | 78 | 224 | 187 | 140 | 117 | 104 | 67 | 84 | 45 | 29 | 39 |
| 11 | 66 | 80 | 274 | 178 | 142 | 115 | 99 | 68 | 117 | 92 | 28 | 38 |
| 12 | 65 | 79 | 168 | 164 | 1880 | 120 | 103 | 70 | 316 | 373 | 26 | 36 |
| 13 | 65 | 74 | 147 | 154 | 850 | 111 | 95 | 79 | 141 | 114 | 26 | 33 |
| 14 | 64 | 65 | 141 | 149 | 430 | 113 | 94 | 82 | 97 | 72 | 33 | 30 |
| 15 | 62 | 68 | 134 | 140 | 302 | 108 | 105 | 59 | 90 | 58 | 28 | 31 |
| 16 | 65 | 68 | 134 | 131 | 248 | 105 | 104 | 71 | 87 | 62 | 25 | 31 |
| 17 | 67 | 68 | 136 | 139 | 218 | 105 | 100 | 413 | 83 | 55 | 29 | 30 |
| 18 | 67 | 69 | 122 | 136 | 195 | 103 | 90 | 145 | 81 | 44 | 986 | 29 |
| 19 | 66 | 132 | 124 | 131 | 182 | 99 | 89 | 101 | 72 | 39 | 978 | 28 |
| 20 | 68 | 128 | 121 | 122 | 174 | 103 | 88 | 89 | 66 | 37 | 245 | 28 |
| 21 | 67 | 100 | 126 | 117 | 163 | 99 | 85 | 77 | 60 | 35 | 251 | 26 |
| 22 | 66 | 90 | 144 | 115 | 156 | 100 | 90 | 69 | 58 | 34 | 150 | 41 |
| 23 | 107 | 85 | 130 | 112 | 156 | 211 | 76 | 148 | 56 | 32 | 110 | 24 |
| 24 | 158 | 83 | 124 | 110 | 164 | 220 | 84 | 296 | 79 | 30 | 95 | 23 |
| 25 | 104 | 82 | 123 | 105 | 171 | 197 | 102 | 411 | 68 | 34 | 135 | 23 |
| 26 | 89 | 78 | 118 | 104 | 187 | 169 | 94 | 191 | 45 | 43 | 187 | 25 |
| 27 | 83 | 76 | 120 | 102 | 183 | 155 | 77 | 137 | 41 | 46 | 137 | 42 |
| 28 | 79 | 138 | 118 | 100 | 169 | 148 | 84 | 115 | 44 | 41 | 114 | 35 |
| 29 | 155 | 648 | 119 | 98 | --- | 143 | 87 | 105 | 45 | 36 | 93 | 27 |
| 30 | 110 | 301 | 117 | 96 | --- | 149 | 80 | 87 | 43 | 34 | 80 | 24 |
| 31 | 93 | --- | 137 | 105 | --- | 135 | --- | 107 | --- | 32 | 74 | --- |
| TOTAL | 2650 | 3332 | 4825 | 5239 | 8917 | 4159 | 2992 | 3743 | 2635 | 1791 | 4160 | 1125 |
| MEAN | 85.5 | 111 | 156 | 169 | 318 | 134 | 99.7 | 121 | 87.8 | 57.8 | 134 | 37.5 |
| MAX | 158 | 648 | 274 | 491 | 1880 | 220 | 140 | 413 | 316 | 373 | 986 | 67 |
| MIN | 62 | 65 | 117 | 96 | 135 | 99 | 76 | 59 | 41 | 30 | 25 | 23 |
| CFSM | .49 | .63 | .89 | .96 | 1.81 | .76 | .57 | .69 | .50 | .33 | .76 | .21 |
| IN. | .56 | .70 | 1.02 | 1.11 | 1.88 | .88 | .63 | .79 | .56 | .38 | .88 | .24 |

CAL YR 1984 TOTAL 111868 MEAN 306 MAX 5170 MIN 52 CFSM 1.74 IN. 23.64
WTR YR 1985 TOTAL 45568 MEAN 125 MAX 1880 MIN 23 CFSM .71 IN. 9.63

## 02034000 RIVANNA RIVER AT PALMYRA, VA

LOCATION.--Lat 37°51'28", long 78°15'58", Fluvanna County, Hydrologic Unit 02080204, on left bank 10 ft upstream from bridge on U.S. Highway 15 at Palmyra, 0.5 mi upstream from Cunningham Creek, and 15 mi upstream from mouth.

DRAINAGE AREA.--664 mi².

PERIOD OF RECORD.--October 1933 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1936(M). WSP 852: 1937. WSP 892: 1934-35. WSP 1303: 1945-46(M). WSP 1503: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 210.39 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 24, 1942, water-stage recorder at site 200 ft downstream at same datum. Oct. 24, 1942, to Dec. 18, 1947, nonrecording gage 10 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 8-26 and Jan. 21-23. Records good except those for period of no gage-height record, Nov. 8-26, and period with ice effect, Jan. 21-23, which are fair. Some diurnal fluctuation at times mostly at low and medium flow by South Fork Rivanna River Reservoir. Combined diversion for water supply and discharge from waste water treatment plant upstream at Charlottesville resulted in an average gain of about 1.3 ft³/s upstream from the gage. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 723 ft³/s, 14.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft³/s, Aug. 20, 1969, gage height, 39.85 ft, from rating curve extended above 76,000 ft³/s on basis of contracted-opening measurement of peak flow and velocity-area study; minimum, 5.2 ft³/s, Sept. 9-11, 1966, gage height, 2.13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 6,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 2330 | 8,230 | 14.46 | Aug. 19 | 0030 | *12,900 | *19.57 |

Minimum discharge, 69 ft³/s, Aug. 15, 17, gage height, 2.54 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 513 | 267 | 768 | 408 | 1020 | 578 | 505 | 256 | 343 | 112 | 203 | 282 |
| 2 | 671 | 252 | 561 | 390 | 3370 | 563 | 488 | 241 | 310 | 114 | 192 | 242 |
| 3 | 366 | 250 | 480 | 624 | 2420 | 533 | 447 | 453 | 247 | 147 | 157 | 219 |
| 4 | 261 | 237 | 435 | 1750 | 1300 | 498 | 434 | 459 | 273 | 132 | 133 | 199 |
| 5 | 231 | 253 | 393 | 1560 | 974 | 494 | 414 | 338 | 320 | 105 | 109 | 180 |
| 6 | 212 | 300 | 766 | 1330 | 814 | 466 | 404 | 286 | 589 | 94 | 96 | 169 |
| 7 | 209 | 278 | 820 | 1050 | 700 | 434 | 381 | 259 | 366 | 85 | 92 | 154 |
| 8 | 203 | 250 | 591 | 861 | 569 | 425 | 378 | 252 | 311 | 78 | 155 | 138 |
| 9 | 209 | 240 | 498 | 692 | 444 | 428 | 366 | 235 | 286 | 73 | 152 | 127 |
| 10 | 212 | 235 | 444 | 604 | 458 | 414 | 349 | 217 | 251 | 81 | 121 | 121 |
| 11 | 207 | 255 | 567 | 552 | 470 | 400 | 336 | 216 | 425 | 86 | 101 | 112 |
| 12 | 203 | 265 | 491 | 520 | 4400 | 408 | 343 | 220 | 595 | 2020 | 90 | 102 |
| 13 | 198 | 250 | 398 | 474 | 4180 | 398 | 326 | 230 | 429 | 898 | 81 | 95 |
| 14 | 194 | 230 | 376 | 439 | 1780 | 371 | 330 | 248 | 285 | 505 | 75 | 88 |
| 15 | 189 | 230 | 356 | 425 | 1220 | 364 | 333 | 225 | 228 | 293 | 73 | 80 |
| 16 | 202 | 235 | 345 | 366 | 964 | 346 | 360 | 197 | 216 | 227 | 75 | 79 |
| 17 | 211 | 240 | 343 | 378 | 818 | 341 | 356 | 837 | 217 | 194 | 72 | 83 |
| 18 | 212 | 250 | 342 | 406 | 727 | 334 | 322 | 684 | 226 | 162 | 3580 | 81 |
| 19 | 211 | 350 | 327 | 390 | 663 | 320 | 307 | 367 | 206 | 139 | 7510 | 80 |
| 20 | 210 | 440 | 324 | 368 | 620 | 319 | 300 | 274 | 182 | 123 | 1390 | 79 |
| 21 | 208 | 400 | 346 | 200 | 581 | 318 | 287 | 244 | 164 | 112 | 1940 | 77 |
| 22 | 204 | 360 | 431 | 340 | 556 | 326 | 286 | 260 | 149 | 107 | 1340 | 75 |
| 23 | 286 | 335 | 406 | 320 | 552 | 669 | 276 | 525 | 140 | 99 | 728 | 102 |
| 24 | 553 | 320 | 358 | 315 | 565 | 926 | 264 | 768 | 130 | 88 | 516 | 87 |
| 25 | 439 | 305 | 347 | 313 | 588 | 759 | 348 | 2010 | 148 | 79 | 646 | 80 |
| 26 | 316 | 305 | 337 | 391 | 637 | 636 | 371 | 1220 | 136 | 153 | 958 | 77 |
| 27 | 273 | 312 | 317 | 356 | 661 | 568 | 301 | 710 | 97 | 236 | 768 | 133 |
| 28 | 254 | 376 | 320 | 284 | 612 | 538 | 270 | 507 | 92 | 250 | 599 | 203 |
| 29 | 306 | 2060 | 318 | 296 | --- | 516 | 290 | 415 | 99 | 174 | 468 | 121 |
| 30 | 412 | 1200 | 315 | 262 | --- | 565 | 272 | 354 | 103 | 142 | 385 | 87 |
| 31 | 306 | --- | 352 | 282 | --- | 516 | --- | 302 | --- | 128 | 322 | --- |
| TOTAL | 8681 | 11280 | 13472 | 16946 | 32663 | 14771 | 10444 | 13809 | 7563 | 7236 | 23127 | 3752 |
| MEAN | 280 | 376 | 435 | 547 | 1167 | 476 | 348 | 445 | 252 | 233 | 746 | 125 |
| MAX | 671 | 2060 | 820 | 1750 | 4400 | 926 | 505 | 2010 | 595 | 2020 | 7510 | 282 |
| MIN | 189 | 230 | 315 | 200 | 444 | 318 | 264 | 197 | 92 | 73 | 72 | 75 |
| CFSM | .42 | .57 | .66 | .82 | 1.76 | .72 | .52 | .67 | .38 | .35 | 1.12 | .19 |
| IN. | .49 | .63 | .75 | .95 | 1.83 | .83 | .59 | .77 | .42 | .41 | 1.30 | .21 |

CAL YR 1984 TOTAL 380283 MEAN 1039 MAX 19300 MIN 141 CFSM 1.56 IN. 21.31
WTR YR 1985 TOTAL 163744 MEAN 449 MAX 7510 MIN 72 CFSM .68 IN. 9.17

## 02034500 WILLIS RIVER AT LAKESIDE VILLAGE, VA

**LOCATION.**--Lat 37°40'00", long 78°10'00", Cumberland County, Hydrologic Unit 02080205, on left bank 15 ft upstream from bridge on State Highway 690, 0.4 mi east of Lakeside Village, 6.9 mi upstream from mouth, and 7.7 mi downstream from Reynolds Creek.

**DRAINAGE AREA.**--262 mi$^2$.

**PERIOD OF RECORD.**--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1978, published as Willis River at Flanagan Mills.

**REVISED RECORDS.**--WSP 872: 1936-37. WSP 892: 1928-29, 1932-34(M). WSP 972: 1937, 1940. WSP 1203: 1929. WSP 1303: 1928-30(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 178.98 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Jan. 3, 1935, nonrecording gage at site 1,300 ft upstream at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 21-29. Records good except those for period with ice effect, Jan. 21-29, which are fair. Regulation of flow from Trice Lake 0.4 mi upstream from station, total capacity, about 1,100 acre-ft, tributary to Willis River, slightly affects flow at gage. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--59 years, 253 ft$^3$/s, 13.11 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum daily discharge, 24,000 ft$^3$/s, June 22, 1972; maximum gage height, 29.8 ft, June 22, 1972, from floodmarks (backwater from James River); minimum discharge, 1.5 ft$^3$/s, Sept. 13, 14, 1966, gage height, 2.26 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,700 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0600 | *2,330 | *14.41 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 20 ft$^3$/s, Aug. 17.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 117 | 76 | 350 | 135 | 558 | 167 | 128 | 50 | 66 | 31 | 51 | 228 |
| 2 | 183 | 72 | 235 | 135 | 1010 | 153 | 120 | 50 | 61 | 33 | 45 | 137 |
| 3 | 137 | 68 | 187 | 207 | 1090 | 142 | 111 | 83 | 54 | 33 | 40 | 100 |
| 4 | 99 | 69 | 165 | 616 | 1040 | 133 | 106 | 140 | 50 | 32 | 36 | 80 |
| 5 | 76 | 83 | 146 | 717 | 816 | 129 | 103 | 122 | 75 | 33 | 33 | 67 |
| 6 | 65 | 98 | 333 | 688 | 450 | 124 | 99 | 97 | 165 | 33 | 30 | 58 |
| 7 | 59 | 93 | 362 | 528 | 326 | 114 | 93 | 82 | 143 | 30 | 28 | 52 |
| 8 | 56 | 82 | 279 | 355 | 259 | 110 | 91 | 72 | 121 | 28 | 38 | 48 |
| 9 | 54 | 75 | 219 | 260 | 214 | 114 | 92 | 66 | 95 | 27 | 53 | 44 |
| 10 | 54 | 71 | 186 | 212 | 187 | 113 | 87 | 62 | 94 | 29 | 46 | 42 |
| 11 | 54 | 75 | 170 | 186 | 185 | 109 | 85 | 58 | 352 | 29 | 37 | 40 |
| 12 | 53 | 85 | 161 | 170 | 383 | 109 | 86 | 58 | 261 | 42 | 35 | 38 |
| 13 | 53 | 86 | 144 | 155 | 570 | 109 | 87 | 56 | 136 | 59 | 30 | 36 |
| 14 | 53 | 78 | 136 | 145 | 545 | 105 | 86 | 57 | 96 | 156 | 27 | 33 |
| 15 | 53 | 73 | 130 | 139 | 419 | 102 | 89 | 57 | 75 | 114 | 24 | 31 |
| 16 | 56 | 71 | 121 | 126 | 297 | 99 | 96 | 56 | 65 | 72 | 22 | 30 |
| 17 | 60 | 69 | 118 | 124 | 244 | 97 | 102 | 59 | 67 | 58 | 20 | 30 |
| 18 | 62 | 69 | 116 | 131 | 218 | 96 | 99 | 75 | 69 | 54 | 760 | 30 |
| 19 | 61 | 87 | 115 | 142 | 195 | 92 | 95 | 68 | 62 | 52 | 2200 | 29 |
| 20 | 60 | 134 | 118 | 147 | 180 | 89 | 85 | 60 | 57 | 46 | 1740 | 29 |
| 21 | 61 | 127 | 125 | 120 | 168 | 89 | 79 | 55 | 51 | 38 | 1640 | 28 |
| 22 | 65 | 109 | 180 | 95 | 157 | 95 | 74 | 50 | 45 | 34 | 1290 | 29 |
| 23 | 84 | 97 | 182 | 92 | 151 | 191 | 69 | 60 | 40 | 33 | 671 | 33 |
| 24 | 212 | 91 | 164 | 94 | 147 | 274 | 65 | 137 | 36 | 28 | 443 | 38 |
| 25 | 209 | 87 | 146 | 95 | 145 | 239 | 66 | 467 | 37 | 25 | 301 | 43 |
| 26 | 158 | 86 | 133 | 96 | 161 | 202 | 64 | 290 | 38 | 28 | 423 | 40 |
| 27 | 123 | 86 | 123 | 98 | 205 | 172 | 59 | 192 | 33 | 43 | 449 | 47 |
| 28 | 104 | 129 | 119 | 100 | 191 | 153 | 57 | 130 | 30 | 57 | 437 | 76 |
| 29 | 93 | 587 | 116 | 105 | --- | 143 | 59 | 95 | 28 | 62 | 301 | 59 |
| 30 | 87 | 453 | 115 | 108 | --- | 145 | 56 | 79 | 29 | 63 | 201 | 47 |
| 31 | 81 | --- | 119 | 140 | --- | 135 | --- | 70 | --- | 57 | 445 | --- |
| TOTAL | 2742 | 3466 | 5313 | 6461 | 10511 | 4144 | 2588 | 3053 | 2531 | 1459 | 11896 | 1622 |
| MEAN | 88.5 | 116 | 171 | 208 | 375 | 134 | 86.3 | 98.5 | 84.4 | 47.1 | 384 | 54.1 |
| MAX | 212 | 587 | 362 | 717 | 1090 | 274 | 128 | 467 | 352 | 156 | 2200 | 228 |
| MIN | 53 | 68 | 115 | 92 | 145 | 89 | 56 | 50 | 28 | 25 | 20 | 28 |
| CFSM | .34 | .44 | .65 | .79 | 1.43 | .51 | .33 | .38 | .32 | .18 | 1.47 | .21 |
| IN. | .39 | .49 | .75 | .92 | 1.49 | .59 | .37 | .43 | .36 | .21 | 1.69 | .23 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 117356 | MEAN | 321 | MAX | 3530 | MIN | 33 | CFSM 1.23 | IN. | 16.66 |
| WTR YR 1985 | TOTAL | 55786 | MEAN | 153 | MAX | 2200 | MIN | 20 | CFSM .58 | IN. | 7.92 |

## 02035000 JAMES RIVER AT CARTERSVILLE, VA
(National stream-quality accounting network station)

**LOCATION.**--Lat 37°40'15", long 78°05'10", Goochland County, Hydrologic Unit 02080205, on left bank 200 ft downstream from bridge on State Highway 45 between Pemberton and Cartersville, 1.8 mi downstream from Willis River, and at mile 156.4.

**DRAINAGE AREA.**--6,257 mi$^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 972: 1936(M). WSP 1203: 1901-2(M), 1923-25(M), 1928(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 163.90 ft above National Geodetic Vertical Datum of 1929. Prior to June 4, 1927, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Oct. 4-10 and Jan. 24-29. Records good. Moderate diurnal fluctuation caused by powerplants upstream from station. National Weather Service gage-height telemeter at station.

**AVERAGE DISCHARGE.**--87 years, 7,076 ft$^3$/s, 15.36 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 362,000 ft$^3$/s, June 22, 1972, gage height, 37.87 ft, from floodmarks, from rating curve extended above 160,000 ft$^3$/s on basis of slope-conveyance study; minimum, 316 ft$^3$/s, Sept. 13, 14, 1966, gage height, 0.02 ft; minimum daily, 330 ft$^3$/s, Sept. 14, 1966.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 40,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 1000 | *60,400 | *18.17 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 1,060 ft$^3$/s, Sept. 22, gage height, 0.75 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2590 | 3930 | 16900 | 5570 | 5610 | 13700 | 6220 | 3620 | 5140 | 1510 | 2030 | 4510 |
| 2 | 4440 | 3430 | 10900 | 5070 | 17800 | 11400 | 6220 | 3300 | 4490 | 1610 | 2980 | 3390 |
| 3 | 4100 | 3100 | 8680 | 6260 | 31400 | 9310 | 5720 | 3350 | 3840 | 1780 | 2420 | 3500 |
| 4 | 3250 | 2940 | 7240 | 11200 | 26300 | 8350 | 5720 | 4910 | 3850 | 1910 | 2620 | 2970 |
| 5 | 3000 | 2710 | 6100 | 18600 | 17700 | 7600 | 5310 | 5300 | 4010 | 2040 | 2200 | 3030 |
| 6 | 2500 | 3020 | 6790 | 20300 | 13200 | 6880 | 4900 | 9740 | 4430 | 1530 | 2290 | 2940 |
| 7 | 2240 | 3380 | 7280 | 16300 | 10900 | 6290 | 4820 | 7130 | 4160 | 1880 | 2420 | 2220 |
| 8 | 2300 | 3500 | 6470 | 13400 | 9180 | 5680 | 4700 | 5510 | 3680 | 1620 | 2480 | 2100 |
| 9 | 2400 | 3620 | 5480 | 10400 | 8020 | 5190 | 4900 | 4730 | 3410 | 1560 | 2950 | 2060 |
| 10 | 2280 | 3280 | 5130 | 9100 | 6610 | 5110 | 4600 | 3950 | 2790 | 1550 | 3200 | 2590 |
| 11 | 2120 | 3290 | 5010 | 8200 | 6230 | 4910 | 4370 | 3440 | 4130 | 1600 | 2570 | 3620 |
| 12 | 2120 | 2840 | 4820 | 6830 | 11200 | 5070 | 4210 | 3500 | 5170 | 2010 | 1680 | 2190 |
| 13 | 1650 | 2990 | 4710 | 6060 | 24300 | 4850 | 4070 | 3280 | 3770 | 8840 | 2040 | 1950 |
| 14 | 1850 | 3030 | 4720 | 5840 | 19200 | 4770 | 3990 | 6600 | 3150 | 5100 | 2310 | 1620 |
| 15 | 1960 | 2780 | 4910 | 5450 | 14000 | 5260 | 3750 | 4220 | 2830 | 3050 | 2060 | 1690 |
| 16 | 1870 | 2590 | 4550 | 4980 | 10600 | 5860 | 4070 | 4090 | 2220 | 2450 | 1500 | 1670 |
| 17 | 2030 | 2530 | 4350 | 4860 | 8740 | 5350 | 4280 | 4220 | 2380 | 2760 | 1680 | 1630 |
| 18 | 1970 | 2630 | 4580 | 4640 | 7620 | 4900 | 4310 | 6850 | 2710 | 2720 | 10200 | 1590 |
| 19 | 2200 | 2450 | 4090 | 4370 | 6910 | 4780 | 4250 | 5320 | 2790 | 2290 | 52900 | 1520 |
| 20 | 2280 | 3700 | 3970 | 4560 | 6510 | 4440 | 4460 | 4360 | 2530 | 1630 | 31100 | 1460 |
| 21 | 2000 | 3970 | 4110 | 3640 | 6180 | 4530 | 4080 | 3790 | 2090 | 1440 | 24900 | 1180 |
| 22 | 1950 | 3810 | 4370 | 2730 | 5960 | 4200 | 3840 | 3730 | 1960 | 1550 | 17500 | 1100 |
| 23 | 2310 | 4540 | 4810 | 2930 | 5670 | 4940 | 3940 | 2960 | 1710 | 1360 | 11700 | 1440 |
| 24 | 5040 | 4080 | 5760 | 3280 | 5920 | 6740 | 3670 | 5440 | 1680 | 1350 | 7710 | 1460 |
| 25 | 4580 | 3630 | 6520 | 3650 | 7140 | 6960 | 3720 | 12000 | 1830 | 1300 | 7070 | 1340 |
| 26 | 4010 | 3450 | 6150 | 4150 | 9130 | 7330 | 3800 | 20300 | 1870 | 1220 | 12800 | 1150 |
| 27 | 3670 | 3400 | 5850 | 3550 | 12600 | 7370 | 3970 | 17300 | 1670 | 2840 | 11500 | 1230 |
| 28 | 3270 | 3370 | 6400 | 3370 | 15300 | 7140 | 3650 | 11400 | 1570 | 2560 | 8640 | 1390 |
| 29 | 2870 | 7430 | 6240 | 3900 | --- | 6790 | 3440 | 9100 | 1570 | 3290 | 7240 | 1340 |
| 30 | 2930 | 17500 | 5800 | 3600 | --- | 7030 | 3710 | 7800 | 1460 | 2930 | 5740 | 1240 |
| 31 | 2840 | --- | 5560 | 3580 | --- | 6120 | --- | 6040 | --- | 3100 | 5290 | --- |
| TOTAL | 84620 | 116920 | 188250 | 210370 | 329930 | 198850 | 132690 | 197280 | 88890 | 72380 | 253720 | 61120 |
| MEAN | 2730 | 3897 | 6073 | 6786 | 11780 | 6415 | 4423 | 6364 | 2963 | 2335 | 8185 | 2037 |
| MAX | 5040 | 17500 | 16900 | 20300 | 31400 | 13700 | 6220 | 20300 | 5170 | 8840 | 52900 | 4510 |
| MIN | 1650 | 2450 | 3970 | 2730 | 5610 | 4200 | 3440 | 2960 | 1460 | 1220 | 1500 | 1100 |
| CFSM | .44 | .62 | .97 | 1.08 | 1.88 | 1.03 | .71 | 1.02 | .47 | .37 | 1.31 | .33 |
| IN. | .50 | .70 | 1.12 | 1.25 | 1.96 | 1.18 | .79 | 1.17 | .53 | .43 | 1.51 | .36 |

CAL YR 1984 TOTAL 3452260 MEAN 9432 MAX 76500 MIN 1650 CFSM 1.51 IN. 20.52
WTR YR 1985 TOTAL 1935020 MEAN 5301 MAX 52900 MIN 1100 CFSM .85 IN. 11.50

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976, October 1980 to May 1981.
WATER TEMPERATURE: April 1968 to January 1976, October 1980 to May 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1980 to May 1981.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 30... | 08:45 | 3010 | 261 | 257 | 7.7 | 7.8 | 20.5 | 756 | 2.6 | 8.5 | 95 | -- |
| NOV 27... | 09:15 | 3600 | 205 | 203 | 7.7 | 7.6 | 5.5 | 760 | 3.5 | 12.8 | 102 | 22 |
| DEC 10... | 09:30 | 5320 | 140 | 136 | 7.6 | 7.4 | 4.0 | 765 | 2.5 | 12.3 | 93 | -- |
| JAN 29... | 09:45 | 3830 | 168 | 166 | 7.8 | 7.7 | 1.0 | 755 | 2.0 | 14.0 | 99 | 210 |
| FEB 26... | 09:15 | 8660 | 170 | 178 | 7.9 | 7.9 | 11.0 | 756 | 3.0 | 10.6 | 97 | 27 |
| MAR 28... | 13:00 | 6640 | 173 | 169 | 8.1 | 7.6 | 14.0 | 745 | 2.5 | 11.2 | 111 | -- |
| APR 29... | 09:15 | 3530 | 150 | 158 | 7.8 | 7.6 | 20.5 | 754 | 2.0 | 7.8 | 88 | 20 |
| MAY 30... | 09:00 | 8030 | 116 | 115 | 7.2 | 7.0 | 20.0 | 751 | 6.5 | 8.6 | 96 | -- |
| JUN 26... | 09:00 | 1820 | 200 | 202 | 8.7 | 8.1 | 26.5 | 749 | 1.5 | 7.7 | 98 | K9 |
| JUL 30... | 10:00 | 2560 | 205 | 184 | 7.7 | 7.4 | 26.0 | 752 | 2.7 | 7.6 | 95 | -- |
| AUG 28... | 13:00 | 7880 | 115 | 115 | 7.6 | 8.1 | 24.5 | 756 | 21 | 7.8 | 94 | 240 |
| SEP 25... | 13:00 | 1320 | 200 | 200 | 8.4 | 7.3 | 22.5 | 753 | 0.8 | 8.6 | 101 | -- |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | ALKA-LINITY FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 30... | -- | -- | -- | -- | -- | -- | -- | 69 | -- | -- | -- | -- |
| NOV 27... | 15 | 81 | 81 | 24 | 5.2 | 11 | 1.8 | 68 | 68 | 17 | 15 | <0.1 |
| DEC 10... | -- | -- | -- | -- | -- | -- | -- | 47 | -- | -- | -- | -- |
| JAN 29... | 13 | 65 | 65 | 19 | 4.2 | 7.8 | 1.5 | 55 | 58 | 12 | 11 | <0.1 |
| FEB 26... | K13 | 72 | 72 | 21 | 4.7 | 6.2 | 1.3 | 62 | 66 | 11 | 9.1 | <0.1 |
| MAR 28... | -- | -- | -- | -- | -- | -- | -- | 57 | -- | -- | -- | -- |
| APR 29... | 19 | 55 | 55 | 16 | 3.7 | 7.1 | 1.7 | 50 | 50 | 13 | 9.4 | <0.1 |
| MAY 30... | -- | -- | -- | -- | -- | -- | -- | 42 | -- | -- | -- | -- |
| JUN 26... | K11 | 73 | 73 | 21 | 5.1 | 11 | 1.8 | 65 | 69 | 13 | 15 | <0.1 |
| JUL 30... | -- | -- | -- | -- | -- | -- | -- | 54 | -- | -- | -- | -- |
| AUG 28... | 77 | 42 | 42 | 12 | 2.8 | 4.4 | 1.7 | 37 | 40 | 9.7 | 5.4 | 0.1 |
| SEP 25... | -- | -- | -- | -- | -- | -- | -- | 62 | -- | -- | -- | -- |

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | ALUM-INUM, DIS-SOLVED (UG/L AS AL) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 30... | 8.5 | -- | -- | <0.01 | 0.39 | 0.20 | 0.4 | 0.37 | 0.34 | 0.35 | -- |
| NOV 27... | 6.9 | 126 | 120 | <0.01 | 0.15 | <0.01 | 0.8 | 0.25 | 0.23 | 0.21 | 30 |
| DEC 10... | 8.5 | -- | -- | <0.01 | 0.66 | <0.01 | 0.8 | -- | -- | -- | -- |
| JAN 29... | 7.7 | 119 | 99 | 0.03 | 0.43 | 0.09 | 0.1 | 0.14 | 0.09 | 0.11 | -- |
| FEB 26... | 5.4 | 106 | 99 | <0.01 | 0.30 | 0.02 | 0.4 | 0.11 | 0.10 | 0.09 | 40 |
| MAR 28... | 3.5 | -- | -- | <0.01 | <0.10 | 0.01 | 0.3 | 0.13 | 0.09 | 0.09 | -- |
| APR 29... | 6.0 | 100 | 88 | <0.01 | 0.38 | 0.01 | 1.0 | 0.14 | 0.15 | 0.14 | 30 |
| MAY 30... | 8.2 | -- | -- | <0.01 | 0.53 | 0.02 | 0.3 | 0.06 | 0.04 | 0.05 | -- |
| JUN 26... | 1.7 | 130 | 110 | 0.01 | <0.10 | 0.01 | 0.6 | 0.11 | 0.08 | 0.08 | -- |
| JUL 30... | 8.5 | -- | -- | <0.01 | 0.28 | 0.01 | -- | -- | 0.13 | 0.13 | -- |
| AUG 28... | 9.2 | 77 | 70 | <0.01 | 0.41 | 0.03 | 0.8 | 0.09 | 0.07 | 0.07 | 40 |
| SEP 25... | 4.6 | -- | -- | <0.01 | 0.30 | 0.21 | 0.3 | 0.15 | 0.11 | 0.11 | -- |

| DATE | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | BERYL-LIUM, DIS-SOLVED (UG/L AS BE) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) | LITHIUM DIS-SOLVED (UG/L AS LI) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV 27... | <1 | 34 | <0.5 | <1 | <1 | <3 | <1 | 93 | 3 | 5 | 6 |
| DEC 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 26... | <1 | 33 | <0.5 | 2 | <1 | <3 | <1 | 45 | <1 | 17 | 4 |
| MAR 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR 29... | <1 | 38 | <0.5 | <1 | <1 | <3 | 1 | 73 | 3 | <4 | 5 |
| MAY 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 28... | <1 | 31 | <0.5 | <1 | 1 | <3 | 1 | 110 | <1 | 20 | 4 |
| SEP 25... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## 02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRON-TIUM, DIS-SOLVED (UG/L AS SR) | VANA-DIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT<br>30... | -- | -- | -- | -- | -- | -- | -- | -- | 3.6 | 6 | 90 |
| NOV<br>27... | <0.1 | <10 | <1 | <1 | <1 | 110 | <6 | 12 | 6.8 | 2 | 82 |
| DEC<br>10... | -- | -- | -- | -- | -- | -- | -- | -- | 4.6 | 7 | 84 |
| JAN<br>29... | -- | -- | -- | -- | -- | -- | -- | -- | 17 | 12 | 94 |
| FEB<br>26... | <0.1 | <10 | <1 | <1 | 1 | 86 | <6 | 5 | 2.3 | 12 | 90 |
| MAR<br>28... | -- | -- | -- | -- | -- | -- | -- | -- | 3.0 | 9 | 94 |
| APR<br>29... | 0.2 | <10 | 1 | <1 | <1 | 79 | <6 | 6 | -- | 10 | 63 |
| MAY<br>30... | -- | -- | -- | -- | -- | -- | -- | -- | 3.4 | 34 | 93 |
| JUN<br>26... | -- | -- | -- | -- | -- | -- | -- | -- | 6.7 | 7 | 48 |
| JUL<br>30... | -- | -- | -- | -- | -- | -- | -- | -- | 6.2 | 5 | 58 |
| AUG<br>28... | <0.1 | <10 | 3 | <1 | <1 | 57 | <6 | <3 | 3.2 | 52 | 97 |
| SEP<br>25... | -- | -- | -- | -- | -- | -- | -- | -- | 3.2 | 4 | 68 |

## 02036500 FINE CREEK AT FINE CREEK MILLS, VA

**LOCATION.**--Lat 37°35'52", long 77°49'12", Powhatan County, Hydrologic Unit 02080205, on right bank 75 ft downstream from bridge on State Highway 711 at Fine Creek Mills, 0.8 mi upstream from mouth, and 6.7 mi northeast of Powhatan.

**DRAINAGE AREA.**--22.1 $mi^2$.

**PERIOD OF RECORD.**--July 1944 to current year.

**REVISED RECORDS.**--WSP 1203: 1948. WSP 1303: 1945(M). WSP 1383: 1954. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 156.59 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1953, nonrecording gage and crest-stage gage at site 75 ft upstream at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 21-29. Records good except those for period with ice effect, Jan. 21-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--41 years, 20.2 $ft^3/s$, 12.41 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 4,180 $ft^3/s$, Oct. 6, 1972, gage height, 9.02 ft, from rating curve extended above 2,600 $ft^3/s$; minimum daily, 0.08 $ft^3/s$, Oct. 1, 1968; minimum gage height, 1.53 ft, Sept. 30, Oct. 1, 1970.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 200 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0530 | *775 | *4.17 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 1.0 $ft^3/s$, July 9.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 12 | 24 | 15 | 67 | 14 | 11 | 4.6 | 4.1 | 1.5 | 12 | 8.5 |
| 2 | 24 | 9.6 | 17 | 16 | 120 | 14 | 9.3 | 5.1 | 3.7 | 1.5 | 13 | 6.9 |
| 3 | 12 | 8.7 | 17 | 28 | 80 | 12 | 8.4 | 9.9 | 3.8 | 1.4 | 6.7 | 5.9 |
| 4 | 6.4 | 11 | 14 | 61 | 38 | 12 | 6.9 | 9.2 | 4.5 | 1.3 | 4.6 | 5.2 |
| 5 | 5.6 | 31 | 15 | 57 | 26 | 12 | 8.0 | 7.1 | 31 | 1.1 | 3.8 | 4.4 |
| 6 | 5.1 | 26 | 34 | 37 | 22 | 11 | 9.1 | 6.0 | 28 | 1.1 | 3.6 | 3.8 |
| 7 | 4.3 | 15 | 32 | 27 | 20 | 11 | 6.9 | 5.2 | 15 | 1.1 | 3.3 | 3.5 |
| 8 | 3.9 | 9.9 | 22 | 22 | 16 | 11 | 7.7 | 4.2 | 9.1 | 1.1 | 5.7 | 3.1 |
| 9 | 3.8 | 7.8 | 17 | 18 | 14 | 13 | 7.8 | 4.0 | 6.4 | 1.3 | 13 | 2.8 |
| 10 | 3.9 | 7.0 | 15 | 16 | 13 | 11 | 7.4 | 3.8 | 6.2 | 3.5 | 5.7 | 2.7 |
| 11 | 3.8 | 13 | 14 | 16 | 13 | 11 | 8.0 | 3.9 | 20 | 3.7 | 4.9 | 2.4 |
| 12 | 4.0 | 16 | 13 | 15 | 42 | 12 | 7.9 | 3.7 | 28 | 4.4 | 3.9 | 2.1 |
| 13 | 3.9 | 13 | 12 | 14 | 49 | 10 | 7.7 | 3.7 | 17 | 5.6 | 3.5 | 1.9 |
| 14 | 3.8 | 10 | 12 | 14 | 29 | 9.5 | 8.1 | 3.5 | 9.2 | 49 | 3.2 | 1.7 |
| 15 | 3.8 | 9.1 | 11 | 13 | 22 | 9.0 | 8.7 | 3.3 | 6.1 | 34 | 2.7 | 1.6 |
| 16 | 4.5 | 11 | 11 | 12 | 18 | 9.3 | 11 | 3.4 | 5.9 | 12 | 2.4 | 1.6 |
| 17 | 4.4 | 9.3 | 12 | 12 | 17 | 9.3 | 10 | 20 | 5.9 | 5.7 | 2.2 | 1.6 |
| 18 | 4.4 | 9.1 | 12 | 15 | 15 | 8.0 | 8.7 | 17 | 4.9 | 4.2 | 66 | 1.6 |
| 19 | 4.7 | 29 | 12 | 17 | 15 | 7.3 | 7.4 | 7.6 | 4.4 | 3.6 | 470 | 1.7 |
| 20 | 5.4 | 31 | 12 | 16 | 14 | 7.7 | 6.7 | 5.3 | 3.9 | 3.4 | 85 | 1.7 |
| 21 | 5.7 | 22 | 15 | 10 | 13 | 7.8 | 6.6 | 4.6 | 3.4 | 3.1 | 36 | 1.7 |
| 22 | 6.8 | 16 | 15 | 9.0 | 12 | 12 | 6.4 | 4.0 | 3.0 | 3.1 | 22 | 2.0 |
| 23 | 13 | 13 | 16 | 8.5 | 12 | 18 | 6.4 | 7.7 | 2.8 | 2.7 | 13 | 3.0 |
| 24 | 30 | 12 | 15 | 8.6 | 12 | 18 | 6.4 | 22 | 2.6 | 2.2 | 8.0 | 3.3 |
| 25 | 28 | 12 | 13 | 8.8 | 14 | 14 | 6.5 | 54 | 2.3 | 3.1 | 22 | 3.5 |
| 26 | 16 | 11 | 11 | 9.0 | 18 | 12 | 6.2 | 24 | 1.9 | 4.2 | 49 | 3.8 |
| 27 | 10 | 11 | 11 | 9.4 | 20 | 10 | 6.1 | 12 | 1.8 | 3.5 | 34 | 22 |
| 28 | 8.6 | 30 | 10 | 10 | 16 | 8.4 | 6.4 | 6.2 | 1.7 | 4.2 | 18 | 22 |
| 29 | 8.1 | 88 | 11 | 12 | --- | 10 | 5.9 | 5.4 | 1.6 | 6.3 | 11 | 10 |
| 30 | 8.1 | 51 | 12 | 15 | --- | 15 | 5.3 | 4.7 | 1.5 | 5.6 | 10 | 5.4 |
| 31 | 15 | --- | 13 | 23 | --- | 13 | --- | 4.1 | --- | 5.3 | 9.2 | --- |
| TOTAL | 288.0 | 554.5 | 470 | 564.3 | 767 | 352.3 | 228.9 | 279.2 | 239.7 | 183.8 | 947.4 | 141.4 |
| MEAN | 9.29 | 18.5 | 15.2 | 18.2 | 27.4 | 11.4 | 7.63 | 9.01 | 7.99 | 5.93 | 30.6 | 4.71 |
| MAX | 30 | 88 | 34 | 61 | 120 | 18 | 11 | 54 | 31 | 49 | 470 | 22 |
| MIN | 3.8 | 7.0 | 10 | 8.5 | 12 | 7.3 | 5.3 | 3.3 | 1.5 | 1.1 | 2.2 | 1.6 |
| CFSM | .42 | .84 | .69 | .82 | 1.24 | .52 | .35 | .41 | .36 | .27 | 1.38 | .21 |
| IN. | .48 | .93 | .79 | .95 | 1.29 | .59 | .39 | .47 | .40 | .31 | 1.59 | .24 |

CAL YR 1984 TOTAL 11620.4 MEAN 31.7 MAX 730 MIN 2.9 CFSM 1.43 IN. 19.56
WTR YR 1985 TOTAL 5016.5 MEAN 13.7 MAX 470 MIN 1.1 CFSM .62 IN. 8.44

## 02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA

LOCATION.--Lat 37°33'52", long 77°34'28", Henrico County, Hydrologic Unit 02080205, on left bank 75 ft downstream from Canal bridge, 400 ft downstream from head gates, 1,200 ft north of north end of Bosher Dam on James River, 1.6 mi upstream from Huguenot Memorial Bridge, and 2.0 mi west of Richmond city limits.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, at datum 3.06 ft higher.

REMARKS.--No estimated daily discharges. Records good. Canal diverts from James River 1,200 ft upstream from Bosher Dam and discharges into river at several points downstream from gaging station near Richmond. Above 2,540 ft³/s, gage height, 14.5 ft, there is interchange of flow with James River; discharge above 2,540 ft³/s included in discharge for James River near Richmond (station 02037500). Figures given show flow in canal only. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--49 years, 764 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 29.1 ft, June 23, 1972, from floodmarks, interchange of flow with James River makes maximum discharge indeterminate; no flow at times when head gates were closed.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 14.72 ft, Aug. 19, interchange of flow with James River makes maximum discharge indeterminate; minimum, 0.84 ft³/s, Nov. 27-28, result of head gates being closed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 772 | 796 | 2.5 | 3.1 | 627 | 482 | 884 | 803 | 805 | 458 | 473 | 697 |
| 2 | 808 | 825 | 2.1 | 3.3 | 632 | 473 | 888 | 781 | 780 | 462 | 359 | 648 |
| 3 | 850 | 794 | 2.2 | 7.5 | 600 | 470 | 876 | 776 | 756 | 465 | 468 | 60 |
| 4 | 812 | 790 | 2.1 | 10 | 596 | 470 | 870 | 808 | 753 | 466 | 460 | 658 |
| 5 | 798 | 792 | 2.5 | 6.2 | 560 | 460 | 858 | 830 | 774 | 470 | 454 | 530 |
| 6 | 790 | 790 | 5.8 | 5.4 | 574 | 460 | 850 | 930 | 772 | 473 | 423 | 393 |
| 7 | 771 | 805 | 3.5 | 3.9 | 303 | 452 | 836 | 916 | 776 | 462 | 30 | 380 |
| 8 | 756 | 805 | 3.1 | 3.5 | 2.1 | 457 | 836 | 866 | 758 | 460 | 208 | 372 |
| 9 | 740 | 805 | 2.8 | 3.1 | 1.8 | 454 | 832 | 830 | 740 | 458 | 447 | 369 |
| 10 | 754 | 808 | 2.5 | 3.1 | 1.6 | 455 | 838 | 803 | 731 | 466 | 442 | 366 |
| 11 | 754 | 792 | 2.3 | 3.1 | 1.6 | 452 | 828 | 785 | 756 | 463 | 439 | 393 |
| 12 | 749 | 787 | 2.1 | 3.0 | 9.5 | 457 | 821 | 780 | 810 | 476 | 426 | 393 |
| 13 | 747 | 785 | 2.1 | 2.9 | 5.8 | 460 | 812 | 763 | 767 | 536 | 407 | 390 |
| 14 | 726 | 789 | 2.1 | 2.9 | 5.0 | 460 | 812 | 803 | 738 | 529 | 410 | 374 |
| 15 | 740 | 780 | 2.1 | 2.8 | 4.6 | 462 | 799 | 846 | 717 | 508 | 407 | 375 |
| 16 | 742 | 771 | 2.1 | 2.9 | 4.4 | 462 | 805 | 796 | 704 | 684 | 407 | 372 |
| 17 | 740 | 771 | 2.1 | 3.1 | 3.9 | 460 | 816 | 805 | 691 | 508 | 401 | 367 |
| 18 | 744 | 769 | 2.3 | 3.0 | 3.5 | 457 | 816 | 830 | 699 | 487 | 698 | 367 |
| 19 | 744 | 769 | 2.7 | 2.8 | 313 | 460 | 812 | 870 | 706 | 486 | 852 | 367 |
| 20 | 754 | 787 | 2.2 | 2.7 | 462 | 460 | 817 | 24 | 702 | 474 | 892 | 364 |
| 21 | 754 | 579 | 2.1 | 2.5 | 470 | 460 | 817 | 196 | 695 | 465 | 902 | 363 |
| 22 | 742 | 1.6 | 2.5 | 2.5 | 465 | 444 | 801 | 756 | 681 | 462 | 886 | 361 |
| 23 | 749 | 1.2 | 2.9 | 2.4 | 466 | 446 | 803 | 735 | 673 | 457 | 856 | 116 |
| 24 | 808 | 1.1 | 2.9 | 2.3 | 466 | 460 | 810 | 771 | 549 | 455 | 817 | 228 |
| 25 | 872 | .96 | 2.9 | 2.4 | 466 | 452 | 794 | 866 | 500 | 463 | 771 | 359 |
| 26 | 834 | .92 | 3.1 | 2.5 | 454 | 450 | 803 | 954 | 481 | 470 | 615 | 357 |
| 27 | 825 | .88 | 3.1 | 2.5 | 466 | 450 | 803 | 934 | 465 | 468 | 844 | 402 |
| 28 | 803 | 2.1 | 3.1 | 2.6 | 490 | 450 | 798 | 916 | 463 | 498 | 830 | 336 |
| 29 | 787 | 8.8 | 3.0 | 2.7 | --- | 626 | 792 | 908 | 460 | 506 | 781 | 335 |
| 30 | 781 | 3.4 | 3.0 | 309 | --- | 910 | 794 | 878 | 458 | 622 | 745 | 332 |
| 31 | 787 | --- | 3.1 | 733 | --- | 900 | --- | 834 | --- | 619 | 709 | --- |
| TOTAL | 24033 | 16409.96 | 82.9 | 1142.7 | 8453.8 | 15271 | 24721 | 24393 | 20360 | 15356 | 17859 | 11424 |
| MEAN | 775 | 547 | 2.67 | 36.9 | 302 | 493 | 824 | 787 | 679 | 495 | 576 | 381 |
| MAX | 872 | 825 | 5.8 | 733 | 632 | 910 | 888 | 954 | 810 | 684 | 902 | 697 |
| MIN | 726 | .88 | 2.1 | 2.3 | 1.6 | 444 | 792 | 24 | 458 | 455 | 30 | 60 |

CAL YR 1984 TOTAL 277760.86 MEAN 759 MAX 1040 MIN .88
WTR YR 1985 TOTAL 179506.36 MEAN 492 MAX 954 MIN .88

## 02037500 JAMES RIVER NEAR RICHMOND, VA

**LOCATION.**--Lat 37°33'47", long 77°32'50", Henrico County, Hydrologic Unit 02080205, on left bank 0.2 mi upstream from Huguenot Memorial Bridge, 0.5 mi southwest of Richmond city limits, 1.7 mi downstream from Bosher Dam, 3.3 mi upstream from Powhite Creek, and at mile 116.6.

**DRAINAGE AREA.**--6,758 $mi^2$.

**PERIOD OF RECORD.**--October 1934 to current year. Gage-height records collected in vicinity of Mayo's Bridge, at mile 109.5, 1876-1956, and at mile 108.7 since 1957, are contained in reports of the National Weather Service.

**REVISED RECORDS.**--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply. Datum of gage is 98.82 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 22-29. Records good except those for period with ice effect, Jan. 22-29, which are fair. City of Richmond takes from 40 $ft^3/s$ to 90 $ft^3/s$ for water supply from river downstream from gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants upstream from station. Above 18.2 ft stage, there is interchange of flow with James River and Kanawha Canal. Records of daily discharge include diversion by city of Richmond but do not include flow in James River and Kanawha Canal (station 02037000) which diverts around station. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--51 years, 7,543 $ft^3/s$, 15.16 in/yr, includes flow in James River and Kanawha Canal.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 313,000 $ft^3/s$, includes canal flow, June 23, 1972, gage height, 28.62 ft; minimum daily, about 10 $ft^3/s$, Sept. 8-15, 1966, Sept. 30, Oct. 5, 6, 1968, Oct. 8-10, 1970; minimum daily discharge of James River and James River and Kanawha Canal combined, 214 $ft^3/s$, Oct. 5, 1941, caused by recharging of the pool above Bosher Dam after the canal gates were closed.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 50,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 1930 | *66,000 | *14.94 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 1,120 $ft^3/s$, July 27, gage height, 3.57 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1850 | 2620 | 18700 | 5430 | 5520 | 13900 | 5580 | 3270 | 5320 | 1400 | 2740 | 4800 |
| 2 | 2620 | 3040 | 12800 | 5550 | 13100 | 12000 | 5460 | 3240 | 4670 | 1440 | 2160 | 4070 |
| 3 | 4000 | 3040 | 9510 | 5550 | 27400 | 9630 | 5290 | 3100 | 4270 | 1440 | 2430 | 3780 |
| 4 | 3820 | 2840 | 8040 | 9050 | 29100 | 8180 | 5100 | 3100 | 3870 | 1520 | 2190 | 3520 |
| 5 | 3420 | 2770 | 6720 | 15900 | 20000 | 7400 | 4880 | 3770 | 3770 | 1590 | 2210 | 2980 |
| 6 | 3070 | 2670 | 6510 | 20600 | 14800 | 6820 | 4670 | 5600 | 3920 | 1710 | 2000 | 3160 |
| 7 | 2820 | 2700 | 7400 | 17700 | 12200 | 6270 | 4400 | 7070 | 4020 | 1610 | 2190 | 3000 |
| 8 | 2430 | 2920 | 7100 | 14900 | 10100 | 5810 | 4400 | 5690 | 3920 | 1540 | 2450 | 2480 |
| 9 | 2160 | 3000 | 6300 | 11600 | 8720 | 5290 | 4340 | 4670 | 3620 | 1520 | 2480 | 2300 |
| 10 | 2000 | 3070 | 5580 | 9630 | 7530 | 4990 | 4370 | 4120 | 3320 | 1490 | 2600 | 2220 |
| 11 | 1970 | 3000 | 5210 | 8680 | 6510 | 4750 | 4320 | 3640 | 3120 | 1440 | 2670 | 2790 |
| 12 | 1920 | 2920 | 5150 | 7730 | 7520 | 4700 | 4220 | 3300 | 4120 | 1420 | 2260 | 3260 |
| 13 | 1900 | 2700 | 4930 | 6720 | 21300 | 4780 | 4170 | 3120 | 4540 | 3370 | 1680 | 2350 |
| 14 | 1780 | 2620 | 4880 | 6160 | 20800 | 4520 | 4120 | 3200 | 3870 | 7100 | 1610 | 2070 |
| 15 | 1610 | 2620 | 4910 | 5720 | 16700 | 4540 | 4070 | 5290 | 3270 | 4750 | 1850 | 1760 |
| 16 | 1640 | 2500 | 4990 | 5490 | 12400 | 4960 | 3970 | 4070 | 2870 | 3040 | 1730 | 1740 |
| 17 | 1660 | 2330 | 4670 | 5120 | 9900 | 5350 | 4040 | 3770 | 2450 | 2310 | 1540 | 1690 |
| 18 | 1660 | 2280 | 4540 | 5040 | 8250 | 4750 | 4120 | 3920 | 2280 | 2400 | 2380 | 1660 |
| 19 | 1710 | 2330 | 4670 | 4910 | 7200 | 4520 | 4100 | 5320 | 2310 | 2430 | 52000 | 1620 |
| 20 | 1780 | 2310 | 4370 | 4750 | 6300 | 4440 | 4040 | 4720 | 2330 | 2140 | 40400 | 1560 |
| 21 | 1850 | 3100 | 4320 | 4520 | 6180 | 4320 | 4070 | 4340 | 2210 | 1730 | 24800 | 1490 |
| 22 | 1850 | 3870 | 4370 | 4000 | 5630 | 4300 | 3940 | 3770 | 2000 | 1490 | 19700 | 1290 |
| 23 | 1800 | 3920 | 4620 | 3700 | 5490 | 4300 | 3740 | 3500 | 1800 | 1330 | 12400 | 1240 |
| 24 | 2090 | 4370 | 4930 | 3500 | 5350 | 5070 | 3720 | 3220 | 1640 | 1260 | 8610 | 1590 |
| 25 | 4270 | 4200 | 6010 | 3650 | 5690 | 6210 | 3600 | 5120 | 1560 | 1240 | 6590 | 1460 |
| 26 | 4120 | 3940 | 6360 | 3700 | 7330 | 6480 | 3500 | 14800 | 1590 | 1240 | 9430 | 1390 |
| 27 | 3770 | 3770 | 5950 | 3800 | 10100 | 6660 | 3500 | 18200 | 1610 | 1190 | 12300 | 1640 |
| 28 | 3500 | 3720 | 5950 | 3900 | 13400 | 6600 | 3500 | 11800 | 1590 | 2280 | 9000 | 1720 |
| 29 | 3170 | 4730 | 6330 | 4000 | --- | 6480 | 3370 | 8870 | 1520 | 2480 | 7290 | 1640 |
| 30 | 2820 | 10800 | 6160 | 4200 | --- | 7100 | 3240 | 7630 | 1470 | 2800 | 6270 | 1540 |
| 31 | 2700 | --- | 5840 | 3820 | --- | 6720 | --- | 6360 | --- | 2500 | 5190 | --- |
| TOTAL | 77760 | 100700 | 197820 | 219020 | 324520 | 191840 | 125840 | 171590 | 88850 | 65200 | 253150 | 67810 |
| MEAN | 2508 | 3357 | 6381 | 7065 | 11590 | 6188 | 4195 | 5535 | 2962 | 2103 | 8166 | 2260 |
| MAX | 4270 | 10800 | 18700 | 20600 | 29100 | 13900 | 5580 | 18200 | 5320 | 7100 | 52000 | 4800 |
| MIN | 1610 | 2280 | 4320 | 3500 | 5350 | 4300 | 3240 | 3100 | 1470 | 1190 | 1540 | 1240 |
| (*) | 775 | 547 | 2.67 | 36.9 | 302 | 493 | 824 | 787 | 679 | 495 | 576 | 381 |
| MEAN† | 3283 | 3904 | 6384 | 7102 | 11890 | 6681 | 5019 | 6322 | 3641 | 2598 | 8742 | 2641 |
| CFSM† | .49 | .58 | .94 | 1.05 | 1.76 | .99 | .74 | .94 | .54 | .38 | 1.29 | .39 |
| IN.† | .56 | .64 | 1.09 | 1.21 | 1.83 | 1.14 | .83 | 1.08 | .60 | .44 | 1.49 | .44 |

CAL YR 1984 TOTAL 3394150 MEAN 9274 MAX 87400 MIN 1490 MEAN† 10030 CFSM† 1.48 IN† 20.21
WTR YR 1985 TOTAL 1884100 MEAN 5162 MAX 52000 MIN 1190 MEAN† 5654 CFSM† .84 IN† 11.36

* Average diversion, in cubic feet per second, by James River & Kanawha Canal.
† Adjusted for diversion.

## 02038000 FALLING CREEK NEAR CHESTERFIELD, VA

**LOCATION.**--Lat 37°26'37", long 77°31'21", Chesterfield County, Hydrologic Unit 02080206, on left bank at upstream side of bridge on State Highway 651, 0.8 mi downstream from Licking Creek, 2.8 mi upstream from Pocoshock Creek, and 4.7 mi northwest of Chesterfield.

**DRAINAGE AREA.**--32.8 $mi^2$.

**PERIOD OF RECORD.**--October 1955 to current year.

**REVISED RECORDS.**--WSP 1904: 1957(M), 1958-60.

**GAGE.**--Water-stage recorder. Datum of gage is 126.39 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 20-24. Records good except those for period with ice effect, Jan. 20-24, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--30 years, 34.0 $ft^3/s$, 14.08 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 5,930 $ft^3/s$, Oct. 1, 1979, gage height, 15.32 ft, from floodmarks, from rating curve extended above 3,200 $ft^3/s$ on basis of slope-conveyance study; minimum, 0.01 $ft^3/s$, Sept. 20, Oct. 3, 1968.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 220 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0945 | *1,110 | *10.23 | | | | |

No other peak equal to or greater than base discharge.

Minimum discharge, 1.2 $ft^3/s$, July 8-9; minimum gage height, 2.67 ft, Aug. 17.

**REVISIONS.**--The peak discharges and annual maximum (*) reported for water years 1983 and 1984 have been revised as shown in the following table. They supersede figures published in the reports for 1983 and 1984.

| Water Year | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|
| 1983 | Mar. 21, 1983 | 1200 | *1,380 | *10.84 |
| | Apr. 16, 1983 | 0945 | 909 | 9.67 |
| 1984 | Mar. 26, 1984 | 0600 | 985 | 9.89 |
| | Mar. 29, 1984 | 0730 | *1,490 | *11.07 |
| | Apr. 14, 1984 | 1745 | 663 | 8.84 |
| | Apr. 23, 1984 | 1015 | 796 | 9.32 |

## 02038000 FALLING CREEK NEAR CHESTERFIELD, VA--Continued

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 4.1 | 15 | 6.8 | 133 | 16 | 15 | 3.6 | 3.3 | 1.9 | 7.9 | 2.4 |
| 2 | 17 | 3.8 | 11 | 8.3 | 168 | 16 | 12 | 3.4 | 2.8 | 1.5 | 5.8 | 2.2 |
| 3 | 10 | 3.4 | 13 | 51 | 85 | 14 | 11 | 7.5 | 2.7 | 1.8 | 4.4 | 2.1 |
| 4 | 7.0 | 3.0 | 11 | 116 | 48 | 14 | 11 | 7.2 | 2.8 | 1.3 | 3.4 | 1.9 |
| 5 | 5.2 | 6.3 | 12 | 71 | 38 | 17 | 10 | 6.3 | 6.1 | 1.4 | 2.5 | 1.8 |
| 6 | 4.2 | 11 | 51 | 38 | 34 | 12 | 9.9 | 5.4 | 12 | 1.5 | 2.3 | 1.7 |
| 7 | 3.4 | 8.4 | 29 | 25 | 28 | 13 | 8.7 | 6.5 | 10 | 1.4 | 2.2 | 1.6 |
| 8 | 2.9 | 5.9 | 17 | 19 | 23 | 12 | 10 | 3.8 | 7.8 | 1.3 | 1.9 | 1.6 |
| 9 | 2.6 | 4.9 | 13 | 15 | 18 | 13 | 9.6 | 4.1 | 5.4 | 2.6 | 1.9 | 1.6 |
| 10 | 2.2 | 4.3 | 11 | 13 | 17 | 12 | 8.9 | 3.5 | 4.5 | 3.1 | 1.8 | 1.6 |
| 11 | 2.2 | 7.1 | 12 | 13 | 17 | 12 | 9.3 | 3.3 | 4.1 | 1.5 | 1.8 | 1.9 |
| 12 | 2.3 | 6.8 | 9.2 | 14 | 116 | 14 | 11 | 3.1 | 17 | 1.4 | 1.8 | 2.0 |
| 13 | 2.2 | 5.7 | 8.6 | 16 | 99 | 11 | 9.3 | 2.8 | 21 | 14 | 1.7 | 2.0 |
| 14 | 2.2 | 5.0 | 8.0 | 16 | 48 | 13 | 9.0 | 3.0 | 11 | 19 | 1.7 | 2.1 |
| 15 | 2.2 | 4.3 | 7.1 | 16 | 36 | 12 | 10 | 2.7 | 7.7 | 19 | 1.5 | 2.1 |
| 16 | 2.2 | 3.9 | 6.9 | 14 | 30 | 10 | 11 | 3.0 | 5.5 | 8.9 | 1.5 | 1.5 |
| 17 | 2.3 | 3.4 | 7.3 | 16 | 25 | 9.7 | 10 | 3.9 | 4.6 | 3.9 | 1.4 | 1.5 |
| 18 | 2.2 | 2.9 | 7.2 | 18 | 22 | 9.5 | 9.0 | 4.1 | 3.6 | 2.3 | 57 | 1.5 |
| 19 | 2.3 | 19 | 6.9 | 20 | 20 | 9.0 | 8.3 | 2.9 | 3.0 | 1.8 | 743 | 1.5 |
| 20 | 2.5 | 23 | 6.8 | 17 | 22 | 9.3 | 7.8 | 2.6 | 2.6 | 1.6 | 89 | 1.5 |
| 21 | 2.6 | 12 | 8.0 | 14 | 16 | 12 | 7.2 | 2.5 | 2.2 | 1.6 | 25 | 1.6 |
| 22 | 2.5 | 8.8 | 9.2 | 11 | 22 | 13 | 6.6 | 2.6 | 2.2 | 1.6 | 15 | 2.8 |
| 23 | 10 | 7.3 | 8.4 | 12 | 16 | 16 | 5.9 | 4.3 | 2.5 | 1.6 | 11 | 3.5 |
| 24 | 16 | 6.4 | 7.5 | 13 | 15 | 17 | 7.5 | 9.7 | 3.0 | 1.6 | 7.1 | 1.9 |
| 25 | 12 | 5.8 | 7.1 | 17 | 14 | 16 | 6.5 | 21 | 2.2 | 2.9 | 5.1 | 1.9 |
| 26 | 8.6 | 5.4 | 6.9 | 17 | 26 | 14 | 5.4 | 14 | 2.2 | 8.5 | 4.3 | 2.8 |
| 27 | 6.6 | 5.1 | 5.8 | 15 | 29 | 12 | 4.2 | 8.3 | 2.2 | 12 | 5.4 | 101 |
| 28 | 4.9 | 16 | 6.3 | 16 | 20 | 12 | 4.3 | 5.8 | 2.0 | 9.3 | 6.2 | 64 |
| 29 | 5.5 | 58 | 5.9 | 16 | --- | 11 | 4.1 | 4.4 | 1.7 | 22 | 5.0 | 15 |
| 30 | 4.7 | 27 | 6.2 | 15 | --- | 14 | 3.9 | 3.7 | 1.6 | 27 | 4.5 | 9.5 |
| 31 | 4.2 | --- | 6.8 | 30 | --- | 15 | --- | 3.4 | --- | 12 | 3.3 | --- |
| TOTAL | 171.7 | 288.0 | 341.1 | 699.1 | 1185 | 400.5 | 256.4 | 162.4 | 159.3 | 191.3 | 1026.4 | 240.1 |
| MEAN | 5.54 | 9.60 | 11.0 | 22.6 | 42.3 | 12.9 | 8.55 | 5.24 | 5.31 | 6.17 | 33.1 | 8.00 |
| MAX | 17 | 58 | 51 | 116 | 168 | 17 | 15 | 21 | 21 | 27 | 743 | 101 |
| MIN | 2.2 | 2.9 | 5.8 | 6.8 | 14 | 9.0 | 3.9 | 2.5 | 1.6 | 1.3 | 1.4 | 1.5 |
| CFSM | .17 | .29 | .34 | .69 | 1.29 | .39 | .26 | .16 | .16 | .19 | 1.01 | .24 |
| IN. | .19 | .33 | .39 | .79 | 1.34 | .45 | .29 | .18 | .18 | .22 | 1.16 | .27 |

CAL YR 1984 TOTAL 17131.6 MEAN 46.8 MAX 1320 MIN 1.7 CFSM 1.43 IN. 19.43
WTR YR 1985 TOTAL 5121.3 MEAN 14.0 MAX 743 MIN 1.3 CFSM .43 IN. 5.81

## 02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA
(Hydrologic bench-mark station)

LOCATION.--Lat 37°24'55", long 78°38'10", Appomattox County, Hydrologic Unit 02080207, on right bank 350 ft downstream from culvert on State Highway 614, 1.0 mi upstream from Holiday Lake, and 5.2 mi southwest of Andersonville.

DRAINAGE AREA.--8.53 mi².

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year.

REVISED RECORDS.--WDR VA-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16, 20-29 and Feb. 8-10. Records good except those for periods of ice effect, Jan. 16, 20-29 and Feb. 8-10, which are fair. Recording rain gage at station.

AVERAGE DISCHARGE.--19 years, 8.99 ft³/s, 14.31 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s, June 21, 1972, gage height, 14.64 ft, from high-water mark in gage house, from rating curve extended above 4,200 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.10 ft³/s, Sept. 11, 12, 1966; minimum gage height, 0.75 ft, July 28, 1966, June 29, 30, July 1, Aug. 26, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 150 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| June 10 | 2345 | 300 | 3.32 | Aug. 18 | 1545 | *731 | *5.26 |
| Aug. 18 | 1145 | 437 | 4.02 | Aug. 20 | 1515 | 264 | 3.12 |

Minimum discharge, 1.1 ft³/s, Aug. 15-16, gage height, 0.86 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 2.8 | 5.1 | 4.9 | 43 | 6.1 | 5.4 | 3.4 | 3.4 | 2.6 | 2.4 | 3.9 |
| 2 | 4.0 | 3.1 | 4.5 | 4.8 | 52 | 6.1 | 5.0 | 3.7 | 2.8 | 2.5 | 2.6 | 3.7 |
| 3 | 2.8 | 2.8 | 4.7 | 16 | 18 | 5.7 | 5.0 | 12 | 2.9 | 2.2 | 2.0 | 3.3 |
| 4 | 2.5 | 2.9 | 4.3 | 19 | 10 | 5.7 | 4.9 | 5.6 | 4.2 | 2.0 | 1.8 | 3.0 |
| 5 | 2.5 | 3.9 | 4.9 | 17 | 8.0 | 5.8 | 4.8 | 4.3 | 9.1 | 1.8 | 1.7 | 2.8 |
| 6 | 2.4 | 3.4 | 11 | 12 | 7.3 | 5.4 | 4.7 | 3.9 | 9.3 | 1.8 | 1.7 | 2.7 |
| 7 | 2.5 | 2.9 | 7.2 | 8.0 | 6.5 | 5.3 | 4.6 | 3.5 | 4.9 | 1.6 | 2.2 | 2.6 |
| 8 | 2.5 | 2.8 | 5.6 | 6.6 | 6.5 | 5.5 | 4.7 | 3.2 | 4.3 | 1.4 | 3.7 | 2.5 |
| 9 | 2.5 | 2.8 | 5.0 | 5.8 | 6.8 | 5.8 | 4.5 | 3.0 | 3.6 | 1.4 | 3.0 | 2.4 |
| 10 | 2.5 | 2.9 | 4.8 | 5.3 | 6.4 | 5.4 | 4.4 | 3.0 | 14 | 1.4 | 2.1 | 2.4 |
| 11 | 2.5 | 3.7 | 4.6 | 5.2 | 5.9 | 5.3 | 4.5 | 3.0 | 44 | 1.5 | 1.9 | 2.1 |
| 12 | 2.4 | 3.5 | 4.4 | 5.0 | 42 | 5.6 | 4.5 | 2.8 | 9.4 | 11 | 1.6 | 2.0 |
| 13 | 2.4 | 3.1 | 4.2 | 4.8 | 16 | 5.2 | 4.4 | 8.4 | 5.6 | 4.0 | 1.6 | 2.0 |
| 14 | 2.4 | 2.8 | 4.2 | 4.8 | 9.7 | 5.2 | 4.6 | 4.1 | 4.2 | 2.5 | 1.4 | 1.9 |
| 15 | 2.4 | 2.8 | 4.1 | 4.6 | 7.8 | 5.1 | 4.9 | 3.2 | 3.8 | 2.1 | 1.3 | 1.9 |
| 16 | 2.5 | 2.9 | 4.1 | 4.8 | 7.8 | 4.9 | 6.0 | 5.3 | 4.3 | 2.4 | 1.2 | 1.9 |
| 17 | 2.5 | 2.8 | 4.2 | 4.9 | 7.4 | 5.1 | 5.1 | 4.4 | 5.5 | 5.9 | 2.1 | 1.9 |
| 18 | 2.7 | 2.8 | 4.1 | 4.9 | 7.0 | 4.9 | 4.5 | 4.0 | 3.7 | 2.3 | 204 | 1.9 |
| 19 | 2.7 | 6.6 | 4.4 | 5.1 | 6.7 | 4.7 | 4.4 | 3.0 | 3.1 | 1.9 | 32 | 1.8 |
| 20 | 2.7 | 4.5 | 4.2 | 4.4 | 6.4 | 4.9 | 4.3 | 2.7 | 2.7 | 1.7 | 54 | 1.6 |
| 21 | 2.7 | 3.5 | 6.9 | 5.3 | 6.1 | 4.9 | 4.1 | 2.6 | 2.4 | 1.6 | 32 | 1.6 |
| 22 | 2.8 | 3.3 | 6.6 | 4.3 | 6.0 | 6.9 | 3.9 | 2.6 | 2.4 | 1.5 | 11 | 2.1 |
| 23 | 7.3 | 3.2 | 5.3 | 4.4 | 6.1 | 12 | 3.8 | 9.4 | 2.4 | 1.4 | 6.8 | 2.7 |
| 24 | 11 | 3.2 | 4.8 | 4.3 | 6.1 | 8.1 | 3.7 | 41 | 2.2 | 1.2 | 5.5 | 2.2 |
| 25 | 4.6 | 3.2 | 4.5 | 4.1 | 6.0 | 6.9 | 3.9 | 21 | 2.0 | 5.9 | 11 | 1.9 |
| 26 | 3.7 | 3.1 | 4.2 | 4.2 | 9.0 | 6.0 | 3.6 | 8.1 | 2.0 | 4.8 | 20 | 1.8 |
| 27 | 3.4 | 3.1 | 4.2 | 4.3 | 7.2 | 5.8 | 3.5 | 5.4 | 1.8 | 6.4 | 21 | 2.7 |
| 28 | 3.2 | 14 | 4.2 | 4.4 | 6.2 | 5.6 | 3.7 | 4.3 | 1.9 | 4.8 | 9.1 | 1.9 |
| 29 | 3.4 | 15 | 4.2 | 4.5 | --- | 5.5 | 4.1 | 3.9 | 1.9 | 5.7 | 6.1 | 1.7 |
| 30 | 3.4 | 6.3 | 4.2 | 4.8 | --- | 5.5 | 3.6 | 3.6 | 2.1 | 3.5 | 4.9 | 1.7 |
| 31 | 2.8 | --- | 5.5 | 8.3 | --- | 5.3 | --- | 3.6 | --- | 2.5 | 4.4 | --- |
| TOTAL | 108.7 | 123.7 | 154.2 | 200.8 | 333.9 | 180.2 | 133.1 | 192.0 | 165.9 | 93.3 | 456.1 | 68.6 |
| MEAN | 3.51 | 4.12 | 4.97 | 6.48 | 11.9 | 5.81 | 4.44 | 6.19 | 5.53 | 3.01 | 14.7 | 2.29 |
| MAX | 11 | 15 | 11 | 19 | 52 | 12 | 6.0 | 41 | 44 | 11 | 204 | 3.9 |
| MIN | 2.4 | 2.8 | 4.1 | 4.1 | 5.9 | 4.7 | 3.5 | 2.6 | 1.8 | 1.2 | 1.2 | 1.6 |
| CFSM | .41 | .48 | .58 | .76 | 1.40 | .68 | .52 | .73 | .65 | .35 | 1.72 | .27 |
| IN. | .47 | .54 | .67 | .88 | 1.46 | .79 | .58 | .84 | .72 | .41 | 1.99 | .30 |

CAL YR 1984 TOTAL 3176.7 MEAN 8.68 MAX 156 MIN 2.0 CFSM 1.02 IN. 13.85
WTR YR 1985 TOTAL 2210.5 MEAN 6.06 MAX 204 MIN 1.2 CFSM .71 IN. 9.64

## 02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | SPECIFIC CONDUCTANCE LAB (US/CM) | PH (STANDARD UNITS) | PH LAB (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | TURBIDITY (NTU) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC<br>04... | 09:45 | 4.2 | 34 | 33 | 6.7 | 7.1 | 4.5 | 757 | 2.0 | 13.1 | 102 | 23 |
| FEB<br>26... | 09:30 | 9.9 | 32 | 34 | 6.8 | 7.4 | 10.0 | 753 | 1.5 | 11.2 | 100 | 50 |
| MAY<br>22... | 09:15 | 2.6 | 38 | 40 | 7.0 | 7.2 | 17.5 | 748 | 3.0 | 9.2 | 98 | K17 |
| AUG<br>27... | 09:45 | 20 | 31 | 33 | 6.7 | 7.4 | 20.0 | 756 | 6.5 | 8.6 | 95 | 1200 |

| DATE | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY LAB (MG/L AS CACO3) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC<br>04... | 82 | 10 | -- | 2.2 | 1.1 | 2.7 | 0.5 | 12 | -- | 2.3 | 1.5 | 13 |
| FEB<br>26... | 32 | 10 | -- | 2.0 | 1.1 | 2.6 | 0.4 | 12 | 11 | 2.8 | 2.1 | 11 |
| MAY<br>22... | 110 | 13 | -- | 2.9 | 1.3 | 2.9 | 0.5 | 16 | 16 | 1.7 | 1.7 | 13 |
| AUG<br>27... | 1700 | 10 | 0 | 2.2 | 1.0 | 1.8 | 0.6 | 8.0 | 11 | 4.0 | 1.6 | 8.8 |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | BERYLLIUM, DISSOLVED (UG/L AS BE) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC<br>04... | 36 | 31 | <0.10 | <0.01 | 0.2 | 0.01 | <0.01 | -- | -- | -- | -- | -- |
| FEB<br>26... | 30 | 29 | <0.10 | <0.01 | 0.4 | 0.02 | <0.01 | -- | 7 | <0.5 | 1 | -- |
| MAY<br>22... | 50 | 34 | <0.10 | <0.01 | <0.1 | <0.01 | <0.01 | -- | -- | -- | -- | -- |
| AUG<br>27... | 18 | 27 | <0.10 | <0.01 | 0.6 | 0.03 | 0.03 | <1 | 26 | <0.5 | <1 | 2 |

## 02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) | LITHIUM DIS-SOLVED (UG/L AS LI) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRON-TIUM, DIS-SOLVED (UG/L AS SR) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 26... | <3 | -- | 230 | -- | <4 | 1 | <0.1 | <10 | -- | -- | -- | 19 |
| MAY | | | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 27... | <3 | 2 | 170 | 6 | <4 | 23 | <0.1 | <10 | 1 | <1 | <1 | 19 |

| DATE | VANA-DIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) | GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) | GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) | GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) | GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) | GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) | GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) | RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) | URANIUM DIS-SOLVED, EXTRAC-TION (UG/L) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | | |
| 04... | -- | -- | <0.6 | <0.4 | 1.0 | <0.6 | 0.9 | <0.5 | 0.04 | <0.01 | 7 | 45 |
| FEB | | | | | | | | | | | | |
| 26... | <6 | 5 | -- | -- | -- | -- | -- | -- | -- | -- | 6 | 82 |
| MAY | | | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 4 | 15 |
| AUG | | | | | | | | | | | | |
| 27... | <6 | 7 | -- | -- | -- | -- | -- | -- | -- | -- | 10 | 91 |

## 02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA

**LOCATION.**--Lat 37°15'25", long 78°29'12", Prince Edward County, Hydrologic Unit 02080207, on left bank 100 ft upstream from bridge on State Highway 658, 0.8 mi upstream from Locket Creek, 2.0 mi northwest of Hampden Sydney, and 6.0 mi southwest of Farmville.

**DRAINAGE AREA.**--69.7 mi$^2$.

**PERIOD OF RECORD.**--August 1946 to current year.

**REVISED RECORDS.**--WSP 1303: 1948-50(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 339.19 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Aug. 19, 1953, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 21-29. Records good except those for period with ice effect, Jan. 21-29, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--39 years, 67.1 ft$^3$/s, 13.07 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 9,160 ft$^3$/s, June 21, 1972, gage height, 12.38 ft, from rating curve extended above 1,600 ft$^3$/s on basis of slope-area measurement at gage height 11.96 ft; minimum daily, 2.7 ft$^3$/s, Oct. 7, 8, 1970.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1940 reached a stage of about 15 ft, from information by local resident.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 0130 | 519 | 5.73 | Aug. 21 | 0100 | 528 | 5.75 |
| Aug. 18 | 2200 | *1,740 | *7.54 | Aug. 26 | 0900 | 724 | 6.14 |

Minimum discharge, 9.0 ft$^3$/s, July 25.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70 | 35 | 60 | 46 | 270 | 52 | 35 | 24 | 23 | 18 | 25 | 48 |
| 2 | 53 | 36 | 53 | 45 | 479 | 50 | 34 | 25 | 21 | 19 | 30 | 43 |
| 3 | 45 | 32 | 52 | 129 | 314 | 47 | 33 | 48 | 20 | 19 | 24 | 41 |
| 4 | 36 | 30 | 50 | 333 | 172 | 45 | 33 | 40 | 21 | 18 | 20 | 38 |
| 5 | 32 | 33 | 49 | 321 | 113 | 45 | 33 | 34 | 27 | 17 | 18 | 36 |
| 6 | 31 | 35 | 96 | 193 | 92 | 42 | 33 | 31 | 34 | 17 | 17 | 34 |
| 7 | 30 | 33 | 80 | 118 | 79 | 41 | 32 | 28 | 30 | 19 | 17 | 33 |
| 8 | 28 | 32 | 66 | 84 | 68 | 41 | 32 | 27 | 27 | 17 | 17 | 31 |
| 9 | 28 | 32 | 58 | 68 | 63 | 41 | 32 | 25 | 25 | 16 | 22 | 30 |
| 10 | 29 | 33 | 55 | 60 | 57 | 41 | 31 | 24 | 24 | 15 | 22 | 29 |
| 11 | 30 | 35 | 53 | 57 | 55 | 39 | 31 | 24 | 27 | 21 | 19 | 29 |
| 12 | 29 | 35 | 50 | 54 | 136 | 40 | 31 | 23 | 29 | 20 | 16 | 28 |
| 13 | 29 | 34 | 48 | 51 | 143 | 38 | 31 | 26 | 29 | 24 | 15 | 27 |
| 14 | 29 | 33 | 46 | 50 | 96 | 38 | 31 | 26 | 25 | 39 | 14 | 26 |
| 15 | 28 | 32 | 45 | 49 | 76 | 38 | 32 | 23 | 22 | 27 | 12 | 26 |
| 16 | 29 | 32 | 44 | 48 | 66 | 37 | 34 | 25 | 24 | 22 | 12 | 25 |
| 17 | 29 | 31 | 47 | 48 | 60 | 36 | 32 | 27 | 28 | 19 | 17 | 25 |
| 18 | 29 | 31 | 45 | 49 | 57 | 36 | 31 | 30 | 24 | 17 | 554 | 24 |
| 19 | 29 | 65 | 44 | 49 | 56 | 35 | 30 | 27 | 22 | 15 | 891 | 24 |
| 20 | 30 | 65 | 44 | 45 | 54 | 35 | 29 | 24 | 20 | 14 | 487 | 23 |
| 21 | 29 | 51 | 49 | 43 | 51 | 35 | 29 | 23 | 19 | 12 | 451 | 23 |
| 22 | 30 | 45 | 54 | 40 | 50 | 39 | 28 | 32 | 17 | 11 | 291 | 22 |
| 23 | 41 | 42 | 50 | 38 | 50 | 51 | 27 | 46 | 17 | 11 | 194 | 26 |
| 24 | 72 | 40 | 47 | 37 | 50 | 48 | 27 | 54 | 17 | 10 | 129 | 27 |
| 25 | 75 | 38 | 45 | 37 | 50 | 44 | 29 | 50 | 16 | 17 | 125 | 27 |
| 26 | 57 | 37 | 43 | 38 | 65 | 41 | 27 | 39 | 16 | 22 | 485 | 26 |
| 27 | 47 | 37 | 42 | 38 | 62 | 39 | 26 | 33 | 15 | 30 | 287 | 34 |
| 28 | 41 | 54 | 41 | 39 | 56 | 38 | 26 | 29 | 15 | 36 | 170 | 34 |
| 29 | 45 | 99 | 41 | 39 | --- | 38 | 26 | 26 | 15 | 32 | 94 | 32 |
| 30 | 40 | 72 | 40 | 40 | --- | 37 | 25 | 24 | 15 | 27 | 66 | 32 |
| 31 | 36 | --- | 46 | 62 | --- | 35 | --- | 24 | --- | 23 | 54 | --- |
| TOTAL | 1186 | 1239 | 1583 | 2348 | 2940 | 1262 | 910 | 941 | 664 | 624 | 4595 | 903 |
| MEAN | 38.3 | 41.3 | 51.1 | 75.7 | 105 | 40.7 | 30.3 | 30.4 | 22.1 | 20.1 | 148 | 30.1 |
| MAX | 75 | 99 | 96 | 333 | 479 | 52 | 35 | 54 | 34 | 39 | 891 | 48 |
| MIN | 28 | 30 | 40 | 37 | 50 | 35 | 25 | 23 | 15 | 10 | 12 | 22 |
| CFSM | .55 | .59 | .73 | 1.09 | 1.51 | .58 | .43 | .44 | .32 | .29 | 2.12 | .43 |
| IN. | .63 | .66 | .84 | 1.25 | 1.57 | .67 | .49 | .50 | .35 | .33 | 2.45 | .48 |

CAL YR 1984 TOTAL 29040 MEAN 79.3 MAX 898 MIN 22 CFSM 1.14 IN. 15.50
WTR YR 1985 TOTAL 19195 MEAN 52.6 MAX 891 MIN 10 CFSM .75 IN. 10.24

## 02039500 APPOMATTOX RIVER AT FARMVILLE, VA

LOCATION.--Lat 37°18'25", long 78°23'20", Cumberland County, Hydrologic Unit 02080207, on left bank at downstream side of bridge on State Highway 45 at north town limits of Farmville and 1.1 mi downstream from Buffalo Creek.

DRAINAGE AREA.--303 mi$^2$.

PERIOD OF RECORD.--March 1926 to current year.

REVISED RECORDS.--WSP 972: 1927-37, 1938(M). WSP 1303: 1927(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.93 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation at low flow caused by Prince Edward Mill 0.2 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 288 ft$^3$/s, 12.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,100 ft$^3$/s, June 22, 1972, gage height, 29.70 ft, from floodmarks, from rating curve extended above 12,000 ft$^3$/s on basis of contracted-opening measurement of peak flow; minimum, 3.8 ft$^3$/s, Sept. 25, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,900 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 1800 | 2,220 | 12.60 | Aug. 21 | 2200 | 3,980 | 15.15 |
| Aug. 19 | 1700 | *8,160 | *18.49 | | | | |

Minimum discharge, 32 ft$^3$/s, July 24, gage height, 3.25 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 225 | 156 | 236 | 178 | 927 | 213 | 145 | 117 | 105 | 58 | 94 | 184 |
| 2 | 253 | 181 | 194 | 169 | 2040 | 202 | 139 | 114 | 96 | 66 | 125 | 159 |
| 3 | 156 | 176 | 186 | 378 | 1560 | 193 | 134 | 204 | 84 | 65 | 90 | 143 |
| 4 | 129 | 168 | 178 | 1160 | 714 | 189 | 134 | 254 | 86 | 60 | 67 | 129 |
| 5 | 114 | 178 | 179 | 1170 | 442 | 186 | 139 | 170 | 97 | 54 | 58 | 119 |
| 6 | 107 | 187 | 377 | 789 | 360 | 176 | 136 | 143 | 143 | 53 | 55 | 109 |
| 7 | 105 | 178 | 382 | 483 | 312 | 160 | 133 | 129 | 141 | 57 | 60 | 102 |
| 8 | 103 | 169 | 271 | 344 | 264 | 159 | 131 | 116 | 117 | 51 | 84 | 96 |
| 9 | 103 | 167 | 226 | 276 | 218 | 165 | 131 | 97 | 105 | 45 | 129 | 91 |
| 10 | 102 | 167 | 202 | 238 | 223 | 164 | 126 | 92 | 96 | 43 | 95 | 88 |
| 11 | 102 | 174 | 190 | 220 | 216 | 160 | 124 | 91 | 291 | 46 | 71 | 83 |
| 12 | 101 | 181 | 178 | 204 | 597 | 161 | 129 | 89 | 289 | 104 | 60 | 81 |
| 13 | 100 | 171 | 168 | 188 | 1010 | 155 | 131 | 98 | 176 | 141 | 54 | 76 |
| 14 | 99 | 164 | 163 | 181 | 462 | 146 | 131 | 141 | 125 | 99 | 51 | 71 |
| 15 | 97 | 161 | 164 | 174 | 346 | 146 | 135 | 108 | 102 | 86 | 47 | 69 |
| 16 | 100 | 160 | 162 | 148 | 293 | 140 | 142 | 101 | 106 | 67 | 44 | 69 |
| 17 | 102 | 159 | 162 | 177 | 262 | 140 | 154 | 134 | 130 | 56 | 51 | 69 |
| 18 | 103 | 155 | 163 | 180 | 243 | 140 | 138 | 141 | 115 | 56 | 1060 | 68 |
| 19 | 104 | 208 | 149 | 182 | 229 | 133 | 129 | 125 | 95 | 47 | 6440 | 67 |
| 20 | 105 | 262 | 148 | 170 | 221 | 132 | 126 | 103 | 82 | 42 | 3370 | 66 |
| 21 | 105 | 202 | 167 | 116 | 206 | 132 | 124 | 93 | 73 | 40 | 2880 | 65 |
| 22 | 103 | 170 | 217 | 231 | 199 | 142 | 120 | 96 | 67 | 38 | 2210 | 69 |
| 23 | 189 | 158 | 205 | 202 | 197 | 222 | 116 | 153 | 65 | 36 | 699 | 84 |
| 24 | 380 | 154 | 176 | 171 | 197 | 249 | 113 | 325 | 62 | 34 | 448 | 86 |
| 25 | 424 | 149 | 166 | 168 | 196 | 206 | 114 | 716 | 60 | 43 | 394 | 79 |
| 26 | 249 | 140 | 155 | 183 | 263 | 179 | 118 | 327 | 57 | 109 | 1050 | 72 |
| 27 | 198 | 131 | 147 | 162 | 293 | 164 | 113 | 199 | 52 | 121 | 1380 | 109 |
| 28 | 169 | 180 | 144 | 155 | 242 | 157 | 113 | 151 | 50 | 202 | 799 | 105 |
| 29 | 163 | 515 | 145 | 152 | --- | 156 | 127 | 130 | 50 | 147 | 404 | 78 |
| 30 | 160 | 340 | 144 | 140 | --- | 157 | 128 | 118 | 50 | 116 | 279 | 70 |
| 31 | 144 | --- | 160 | 222 | --- | 151 | --- | 110 | --- | 90 | 223 | --- |
| TOTAL | 4694 | 5661 | 5904 | 8911 | 12732 | 5175 | 3873 | 4985 | 3167 | 2272 | 22871 | 2756 |
| MEAN | 151 | 189 | 190 | 287 | 455 | 167 | 129 | 161 | 106 | 73.3 | 738 | 91.9 |
| MAX | 424 | 515 | 382 | 1170 | 2040 | 249 | 154 | 716 | 291 | 202 | 6440 | 184 |
| MIN | 97 | 131 | 144 | 116 | 196 | 132 | 113 | 89 | 50 | 34 | 44 | 65 |
| CFSM | .50 | .62 | .63 | .95 | 1.50 | .55 | .43 | .53 | .35 | .24 | 2.44 | .30 |
| IN. | .58 | .70 | .72 | 1.09 | 1.56 | .64 | .48 | .61 | .39 | .28 | 2.81 | .34 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 131881 | MEAN | 360 | MAX | 4670 | MIN | 71 | CFSM 1.19 | IN. | 16.19 |
| WTR YR 1985 | TOTAL | 83001 | MEAN | 227 | MAX | 6440 | MIN | 34 | CFSM .75 | IN. | 10.19 |

## 02040000 APPOMATTOX RIVER AT MATTOAX, VA

**LOCATION.**--Lat 37°25'17", long 77°51'33", Amelia County, Hydrologic Unit 02080207, on right bank 75 ft upstream from Southern Railway bridge at Mattoax, 0.3 mi upstream from Skinquarter Creek, and 3.7 mi upstream from Flat Creek.

**DRAINAGE AREA.**--726 mi$^2$.

**PERIOD OF RECORD.**--August 1900 to December 1905, March 1926 to current year.

**REVISED RECORDS.**--WSP 892: 1938. WSP 972: 1928, 1932, 1934-38. WSP 1303: 1901(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 174.51 ft above National Geodetic Vertical Datum of 1929. August 1900 to December 1905, nonrecording gage at same site, different datum. March 1926 to October 1936, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Oct. 22 to Dec. 3 and Jan. 23-29. Records good except those for period of no gage-height record, Oct. 22 to Dec. 3, and period with ice effect, Jan. 23-29, which are fair. Appomattox Water Authority gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--64 years, 724 ft$^3$/s, 13.54 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 35,000 ft$^3$/s, Aug. 18, 1940, gage height, 35.3 ft, from floodmark in gage house, from rating curve extended above 20,000 ft$^3$/s on basis of records for stations at Farmville and near Petersburg; minimum, 11 ft$^3$/s, Oct. 2, 1930, gage height, 3.52 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 4,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 23 | 1600 | *4,190 | *18.90 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 67 ft$^3$/s, July 24-25, gage height, 5.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 242 | 240 | 920 | 358 | 1540 | 578 | 362 | 212 | 191 | 95 | 168 | 407 |
| 2 | 424 | 225 | 600 | 388 | 3250 | 520 | 344 | 205 | 180 | 98 | 144 | 330 |
| 3 | 472 | 215 | 460 | 508 | 3530 | 484 | 326 | 211 | 170 | 113 | 150 | 288 |
| 4 | 306 | 210 | 438 | 1910 | 3640 | 455 | 316 | 252 | 159 | 120 | 162 | 264 |
| 5 | 242 | 350 | 431 | 2980 | 3690 | 443 | 304 | 358 | 203 | 115 | 137 | 242 |
| 6 | 218 | 500 | 691 | 3170 | 1580 | 429 | 300 | 282 | 224 | 102 | 116 | 228 |
| 7 | 199 | 470 | 1250 | 3160 | 1020 | 410 | 390 | 236 | 208 | 101 | 115 | 216 |
| 8 | 192 | 350 | 970 | 1490 | 826 | 386 | 284 | 212 | 224 | 97 | 114 | 205 |
| 9 | 194 | 310 | 652 | 907 | 708 | 390 | 277 | 196 | 207 | 96 | 136 | 199 |
| 10 | 187 | 285 | 539 | 705 | 600 | 390 | 274 | 185 | 194 | 87 | 185 | 188 |
| 11 | 185 | 280 | 482 | 617 | 585 | 386 | 270 | 171 | 316 | 86 | 168 | 180 |
| 12 | 182 | 315 | 448 | 570 | 1000 | 384 | 266 | 166 | 364 | 86 | 136 | 170 |
| 13 | 182 | 315 | 422 | 530 | 2050 | 376 | 266 | 166 | 486 | 150 | 114 | 163 |
| 14 | 182 | 300 | 396 | 496 | 2330 | 366 | 270 | 164 | 308 | 286 | 102 | 157 |
| 15 | 182 | 275 | 380 | 472 | 1260 | 352 | 277 | 182 | 235 | 211 | 91 | 146 |
| 16 | 182 | 250 | 368 | 443 | 850 | 340 | 282 | 196 | 195 | 158 | 85 | 141 |
| 17 | 185 | 240 | 362 | 417 | 724 | 334 | 288 | 198 | 183 | 135 | 88 | 136 |
| 18 | 190 | 230 | 356 | 431 | 654 | 324 | 296 | 200 | 213 | 116 | 460 | 135 |
| 19 | 192 | 350 | 358 | 465 | 612 | 320 | 280 | 211 | 214 | 104 | 2640 | 131 |
| 20 | 196 | 670 | 358 | 472 | 573 | 312 | 264 | 200 | 181 | 98 | 3060 | 129 |
| 21 | 196 | 720 | 364 | 412 | 544 | 304 | 254 | 180 | 151 | 92 | 3260 | 128 |
| 22 | 195 | 660 | 410 | 262 | 518 | 308 | 248 | 164 | 134 | 83 | 3680 | 128 |
| 23 | 210 | 450 | 462 | 260 | 501 | 368 | 236 | 198 | 124 | 76 | 4140 | 133 |
| 24 | 265 | 360 | 455 | 275 | 496 | 568 | 228 | 320 | 118 | 71 | 3070 | 143 |
| 25 | 660 | 320 | 405 | 285 | 491 | 597 | 222 | 640 | 112 | 80 | 772 | 157 |
| 26 | 740 | 300 | 370 | 295 | 522 | 510 | 222 | 913 | 104 | 84 | 1250 | 151 |
| 27 | 350 | 298 | 350 | 305 | 654 | 438 | 222 | 556 | 102 | 112 | 1810 | 190 |
| 28 | 300 | 350 | 334 | 330 | 691 | 398 | 218 | 338 | 97 | 180 | 2050 | 212 |
| 29 | 270 | 950 | 328 | 355 | --- | 380 | 222 | 259 | 90 | 214 | 1160 | 225 |
| 30 | 255 | 1150 | 328 | 380 | --- | 376 | 208 | 225 | 91 | 248 | 642 | 181 |
| 31 | 250 | --- | 332 | 448 | --- | 368 | --- | 205 | --- | 198 | 549 | --- |
| TOTAL | 8225 | 11938 | 15019 | 24096 | 35439 | 12594 | 8216 | 8201 | 5778 | 3892 | 30754 | 5703 |
| MEAN | 265 | 398 | 484 | 777 | 1266 | 406 | 274 | 265 | 193 | 126 | 992 | 190 |
| MAX | 740 | 1150 | 1250 | 3170 | 3690 | 597 | 390 | 913 | 486 | 286 | 4140 | 407 |
| MIN | 182 | 210 | 328 | 260 | 491 | 304 | 208 | 164 | 90 | 71 | 85 | 128 |
| CFSM | .37 | .55 | .67 | 1.07 | 1.74 | .56 | .38 | .37 | .27 | .17 | 1.37 | .26 |
| IN. | .42 | .61 | .77 | 1.23 | 1.82 | .65 | .42 | .42 | .30 | .20 | 1.58 | .29 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 351893 | MEAN | 961 | MAX | 9030 | MIN | 136 | CFSM 1.32 | IN. | 18.03 |
| WTR YR 1985 | TOTAL | 169855 | MEAN | 465 | MAX | 4140 | MIN | 71 | CFSM .64 | IN. | 8.70 |

## 02041000 DEEP CREEK NEAR MANNBORO, VA

LOCATION.--Lat 37°16'59", long 77°52'12", Amelia County, Hydrologic Unit 02080207, on left bank 300 ft upstream from bridge on State Highway 153, 0.9 mi upstream from Sweathouse Creek, 3.4 mi northwest of Mannboro, and 7.5 mi southeast of Amelia.

DRAINAGE AREA.--158 mi².

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1203: 1948 (calendar year figures only). WSP 2104: Drainage area. WDR VA-79-1: 1973-76(P), 1978.

GAGE.--Water-stage recorder. Datum of gage is 177.20 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1949, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-30. Records good except those for period with ice effect, Jan. 22-30, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--39 years, 151 ft³/s, 12.98 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s, Oct. 6, 1972, gage height, 24.04 ft, from high-water mark, from rating curve extended above 3,900 ft³/s; minimum, 0.03 ft³/s, Oct. 4, 5, 1968; minimum gage height, 0.29 ft, Aug. 9-12, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 14.8 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,200 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 5 | 0200 | 1,740 | 8.15 | Feb. 2 | 1830 | *1,840 | *8.27 |

Minimum discharge, 3.4 ft³/s, Sept. 15, 18, gage height, 1.47 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 65 | 60 | 196 | 85 | 492 | 124 | 80 | 27 | 19 | 5.8 | 16 | 14 |
| 2 | 115 | 57 | 130 | 93 | 1470 | 111 | 74 | 25 | 17 | 6.2 | 14 | 12 |
| 3 | 118 | 52 | 124 | 290 | 1420 | 102 | 69 | 33 | 16 | 6.5 | 12 | 10 |
| 4 | 78 | 49 | 129 | 1100 | 774 | 97 | 66 | 47 | 15 | 6.1 | 10 | 9.1 |
| 5 | 54 | 90 | 132 | 1530 | 365 | 96 | 63 | 52 | 16 | 5.5 | 8.9 | 8.2 |
| 6 | 41 | 127 | 235 | 958 | 277 | 92 | 61 | 43 | 18 | 5.5 | 8.0 | 7.3 |
| 7 | 34 | 127 | 333 | 480 | 253 | 86 | 58 | 35 | 26 | 5.9 | 7.3 | 6.3 |
| 8 | 30 | 95 | 237 | 265 | 209 | 83 | 57 | 30 | 33 | 5.2 | 8.0 | 5.7 |
| 9 | 27 | 75 | 155 | 192 | 152 | 84 | 55 | 27 | 28 | 4.6 | 21 | 5.3 |
| 10 | 26 | 66 | 128 | 151 | 142 | 84 | 54 | 25 | 25 | 4.5 | 24 | 4.9 |
| 11 | 25 | 65 | 116 | 134 | 146 | 82 | 53 | 25 | 22 | 8.2 | 14 | 4.6 |
| 12 | 26 | 73 | 108 | 132 | 324 | 85 | 54 | 27 | 20 | 14 | 12 | 4.3 |
| 13 | 25 | 73 | 101 | 120 | 779 | 82 | 55 | 25 | 19 | 40 | 9.6 | 4.0 |
| 14 | 25 | 73 | 95 | 112 | 655 | 79 | 55 | 25 | 15 | 30 | 8.6 | 3.8 |
| 15 | 25 | 66 | 91 | 111 | 294 | 79 | 58 | 25 | 13 | 16 | 8.0 | 3.7 |
| 16 | 25 | 61 | 89 | 97 | 210 | 76 | 61 | 24 | 13 | 9.3 | 7.7 | 3.7 |
| 17 | 26 | 56 | 88 | 98 | 178 | 74 | 60 | 27 | 23 | 7.6 | 7.6 | 3.8 |
| 18 | 28 | 54 | 85 | 108 | 159 | 71 | 56 | 37 | 25 | 6.6 | 20 | 3.6 |
| 19 | 29 | 102 | 86 | 127 | 148 | 68 | 52 | 42 | 20 | 5.8 | 102 | 3.7 |
| 20 | 31 | 189 | 86 | 127 | 136 | 68 | 47 | 37 | 14 | 5.4 | 132 | 3.9 |
| 21 | 31 | 195 | 89 | 106 | 124 | 65 | 44 | 31 | 10 | 5.0 | 98 | 4.2 |
| 22 | 33 | 126 | 102 | 99 | 117 | 73 | 41 | 33 | 8.2 | 4.6 | 77 | 4.8 |
| 23 | 55 | 94 | 102 | 72 | 112 | 114 | 38 | 33 | 6.7 | 4.4 | 59 | 5.8 |
| 24 | 57 | 81 | 96 | 73 | 110 | 165 | 36 | 57 | 6.7 | 3.9 | 42 | 6.5 |
| 25 | 68 | 75 | 90 | 74 | 108 | 160 | 35 | 89 | 6.5 | 4.2 | 31 | 7.1 |
| 26 | 71 | 72 | 82 | 76 | 138 | 128 | 33 | 82 | 5.7 | 5.5 | 26 | 7.3 |
| 27 | 69 | 70 | 75 | 80 | 172 | 105 | 32 | 55 | 5.3 | 7.8 | 25 | 12 |
| 28 | 63 | 85 | 72 | 85 | 152 | 93 | 31 | 38 | 5.4 | 12 | 26 | 16 |
| 29 | 64 | 233 | 70 | 95 | --- | 88 | 31 | 28 | 5.4 | 22 | 23 | 18 |
| 30 | 64 | 308 | 70 | 100 | --- | 86 | 28 | 23 | 5.3 | 24 | 19 | 14 |
| 31 | 63 | --- | 76 | 142 | --- | 83 | --- | 21 | --- | 20 | 18 | --- |
| TOTAL | 1491 | 2949 | 3668 | 7312 | 9616 | 2883 | 1537 | 1128 | 462.2 | 312.1 | 894.7 | 217.6 |
| MEAN | 48.1 | 98.3 | 118 | 236 | 343 | 93.0 | 51.2 | 36.4 | 15.4 | 10.1 | 28.9 | 7.25 |
| MAX | 118 | 308 | 333 | 1530 | 1470 | 165 | 80 | 89 | 33 | 40 | 132 | 18 |
| MIN | 25 | 49 | 70 | 72 | 108 | 65 | 28 | 21 | 5.3 | 3.9 | 7.3 | 3.6 |
| CFSM | .30 | .62 | .75 | 1.49 | 2.17 | .59 | .32 | .23 | .10 | .06 | .18 | .05 |
| IN. | .35 | .69 | .86 | 1.72 | 2.26 | .68 | .36 | .27 | .11 | .07 | .21 | .05 |

CAL YR 1984 TOTAL 86439 MEAN 236 MAX 7230 MIN 19 CFSM 1.49 IN. 20.35
WTR YR 1985 TOTAL 32470.6 MEAN 89.0 MAX 1530 MIN 3.6 CFSM .56 IN. 7.64

## 02041650 APPOMATTOX RIVER AT MATOACA, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°13'28", long 77°28'32", Chesterfield County, Hydrologic Unit 02080207, on left bank at upstream side of bridge on State Highway 600, 0.2 mi south of Matoaca, 2.0 mi upstream from Rohoic Creek, 2.8 mi downstream from Lake Chesdin, 3.5 mi west of Petersburg, and at mile 15.9.

DRAINAGE AREA.--1,344 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 68.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-22, Jan. 21-29, and Sept. 7-12. Records good except those for periods of doubtful gage-height record, Oct. 1-22 and Sept. 7-12, and period with ice effect, Jan. 21-29, which are fair. Flow regulated by Appomattox Water Authority at Lake Chesdin, capacity, 36,000 acre-ft, 2.8 mi upstream, from which an average of 12.4 ft$^3$/s is diverted for industrial and municipal use. Records do not include flow of Upper Appomattox Canal of city of Petersburg which diverts around station. National Weather Service gage-height telemeter at station.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--16 years, 1,500 ft$^3$/s, 15.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,800 ft$^3$/s, Oct. 7, 1972, gage height, 18.39 ft; minimum, 41 ft$^3$/s, Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,950 ft$^3$/s, Feb. 3, gage height, 8.62 ft; minimum, 138 ft$^3$/s, July 18, 19, 20, 21, 22, gage height, 1.79 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 300 | 446 | 1840 | 580 | 2490 | 1170 | 764 | 301 | 315 | 200 | 178 | 621 |
| 2 | 350 | 437 | 1220 | 699 | 6590 | 1080 | 685 | 299 | 279 | 201 | 186 | 495 |
| 3 | 415 | 407 | 1030 | 1510 | 7870 | 957 | 634 | 423 | 262 | 208 | 183 | 388 |
| 4 | 450 | 405 | 899 | 4360 | 7580 | 906 | 597 | 365 | 245 | 207 | 184 | 324 |
| 5 | 400 | 487 | 844 | 6450 | 6700 | 920 | 577 | 401 | 293 | 205 | 186 | 275 |
| 6 | 380 | 612 | 1280 | 6650 | 5380 | 827 | 631 | 492 | 290 | 206 | 162 | 250 |
| 7 | 350 | 613 | 1790 | 6030 | 2700 | 782 | 554 | 462 | 289 | 204 | 157 | 230 |
| 8 | 335 | 560 | 2030 | 4650 | 1820 | 785 | 571 | 374 | 307 | 177 | 193 | 215 |
| 9 | 330 | 513 | 1500 | 2240 | 1400 | 773 | 568 | 356 | 316 | 160 | 161 | 200 |
| 10 | 310 | 476 | 1090 | 1500 | 1200 | 767 | 441 | 324 | 298 | 157 | 159 | 195 |
| 11 | 300 | 520 | 929 | 1240 | 1100 | 747 | 487 | 319 | 308 | 147 | 155 | 180 |
| 12 | 280 | 518 | 818 | 1130 | 1890 | 839 | 496 | 313 | 407 | 150 | 153 | 170 |
| 13 | 275 | 509 | 761 | 1020 | 3880 | 701 | 499 | 316 | 562 | 144 | 152 | 163 |
| 14 | 270 | 476 | 703 | 971 | 4470 | 701 | 494 | 298 | 554 | 143 | 148 | 153 |
| 15 | 265 | 457 | 676 | 964 | 3740 | 728 | 546 | 272 | 436 | 142 | 148 | 152 |
| 16 | 265 | 474 | 641 | 821 | 2110 | 627 | 543 | 268 | 371 | 141 | 182 | 152 |
| 17 | 260 | 439 | 638 | 832 | 1550 | 685 | 538 | 304 | 324 | 140 | 173 | 153 |
| 18 | 260 | 426 | 620 | 834 | 1320 | 659 | 520 | 313 | 300 | 139 | 368 | 153 |
| 19 | 262 | 578 | 604 | 907 | 1210 | 577 | 544 | 281 | 297 | 139 | 410 | 153 |
| 20 | 265 | 776 | 605 | 1040 | 1130 | 609 | 491 | 272 | 285 | 139 | 2430 | 154 |
| 21 | 268 | 914 | 621 | 1000 | 1060 | 574 | 469 | 276 | 261 | 144 | 3430 | 155 |
| 22 | 270 | 898 | 663 | 950 | 1010 | 620 | 441 | 310 | 231 | 146 | 3630 | 211 |
| 23 | 274 | 733 | 689 | 580 | 976 | 725 | 405 | 321 | 227 | 146 | 3970 | 160 |
| 24 | 293 | 618 | 726 | 590 | 956 | 874 | 382 | 446 | 214 | 143 | 4360 | 160 |
| 25 | 436 | 549 | 721 | 600 | 928 | 1110 | 402 | 666 | 206 | 202 | 3150 | 159 |
| 26 | 660 | 514 | 657 | 605 | 1050 | 1080 | 351 | 909 | 200 | 161 | 1180 | 262 |
| 27 | 704 | 495 | 613 | 615 | 1190 | 975 | 344 | 1030 | 196 | 215 | 1190 | 420 |
| 28 | 597 | 545 | 588 | 670 | 1220 | 866 | 329 | 776 | 196 | 179 | 1560 | 254 |
| 29 | 534 | 1030 | 574 | 740 | --- | 822 | 324 | 543 | 200 | 184 | 1770 | 252 |
| 30 | 482 | 1760 | 560 | 770 | --- | 774 | 312 | 398 | 197 | 183 | 1270 | 266 |
| 31 | 451 | --- | 583 | 916 | --- | 750 | --- | 326 | --- | 180 | 842 | --- |
| TOTAL | 11291 | 18185 | 27513 | 52464 | 74520 | 25010 | 14939 | 12754 | 8866 | 5232 | 32420 | 7075 |
| MEAN | 364 | 606 | 888 | 1692 | 2661 | 807 | 498 | 411 | 296 | 169 | 1046 | 236 |
| MAX | 704 | 1760 | 2030 | 6650 | 7870 | 1170 | 764 | 1030 | 562 | 215 | 4360 | 621 |
| MIN | 260 | 405 | 560 | 580 | 928 | 574 | 312 | 268 | 196 | 139 | 148 | 152 |

CAL YR 1984 TOTAL 656387 MEAN 1793 MAX 15500 MIN 235
WTR YR 1985 TOTAL 290269 MEAN 795 MAX 7870 MIN 139

## 02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 08:15 | 744 | 94 | 94 | 7.3 | 7.5 | 9.5 | 761 | 6.8 | 11.0 | 96 |
| JAN 24... | 09:15 | E590 | 70 | 77 | 7.3 | 6.9 | 1.0 | 749 | 15 | 14.2 | 102 |
| FEB 20... | 12:30 | 1130 | 65 | 65 | 7.1 | 6.8 | 5.0 | 760 | 40 | 13.6 | 107 |
| MAY 23... | 08:30 | 313 | 95 | 96 | 7.1 | 7.6 | 20.5 | 748 | 2.1 | 7.8 | 88 |
| JUL 09... | 13:30 | 143 | 96 | 98 | 7.7 | 7.6 | 26.0 | 747 | 1.7 | 7.4 | 93 |
| AUG 22... | 09:00 | 3620 | 94 | 91 | 7.1 | 7.0 | 25.0 | 753 | 5.0 | 7.7 | 94 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | ALKA-LINITY FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 19 | 180 | 31 | 31 | 7.2 | 3.2 | 5.7 | 2.7 | 35 | 34 | 4.9 |
| JAN 24... | 24 | K11 | 21 | 21 | 4.9 | 2.1 | 4.4 | 2.3 | 18 | 19 | 8.7 |
| FEB 20... | 76 | 210 | 19 | 19 | 4.6 | 1.9 | 4.1 | 1.6 | 15 | 17 | 8.9 |
| MAY 23... | K16 | 31 | 34 | 34 | 7.6 | 3.6 | 6.3 | 1.7 | 37 | 40 | 5.1 |
| JUL 09... | 21 | 32 | 32 | 32 | 7.5 | 3.3 | 5.7 | 2.1 | 37 | 38 | 5.2 |
| AUG 22... | 13 | 78 | 32 | 32 | 7.2 | 3.3 | 6.0 | 2.2 | 35 | 36 | 3.7 |

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 5.0 | 0.1 | 17 | 72 | 66 | <0.10 | <0.01 | 0.2 | <0.01 | <0.01 | <0.01 |
| JAN 24... | 4.6 | <0.1 | 14 | 58 | 52 | 0.29 | 0.03 | 0.1 | 0.05 | 0.02 | <0.01 |
| FEB 20... | 4.3 | <0.1 | 13 | 60 | 49 | 0.23 | 0.05 | 0.5 | 0.02 | 0.02 | 0.02 |
| MAY 23... | 4.4 | 0.1 | 13 | 62 | 66 | <0.10 | 0.06 | 0.6 | <0.01 | <0.01 | <0.01 |
| JUL 09... | 4.3 | 0.1 | 16 | 77 | 67 | 0.24 | 0.01 | 0.3 | 0.02 | 0.02 | 0.02 |
| AUG 22... | 4.3 | 0.2 | 15 | 57 | 64 | <0.10 | 0.10 | 0.8 | 0.04 | 0.02 | <0.01 |

## 02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | ALUMINUM, DISSOLVED (UG/L AS AL) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | BERYLLIUM, DISSOLVED (UG/L AS BE) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) | LEAD, DISSOLVED (UG/L AS PB) | LITHIUM DISSOLVED (UG/L AS LI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 20 | <1 | 25 | <0.5 | <1 | 2 | <3 | 1 | 130 | <1 | <4 |
| JAN 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 20... | 90 | <1 | 23 | <0.5 | <1 | <1 | <3 | 1 | 240 | <1 | 23 |
| MAY 23... | 20 | <1 | 24 | <0.5 | <1 | <1 | <3 | 2 | 30 | 6 | <4 |
| JUL 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 22... | 20 | <1 | 27 | <0.5 | <1 | <1 | <3 | 1 | 42 | <1 | <4 |

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | MOLYBDENUM, DISSOLVED (UG/L AS MO) | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | STRONTIUM, DISSOLVED (UG/L AS SR) | VANADIUM, DISSOLVED (UG/L AS V) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 14 | <0.1 | <10 | <1 | <1 | <1 | 56 | <6 | 7 | 10 | 96 |
| JAN 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10 | 93 |
| FEB 20... | 38 | <0.1 | <10 | 1 | <1 | <1 | 34 | <6 | 6 | 69 | 97 |
| MAY 23... | 77 | 0.1 | <10 | 1 | <1 | <1 | 66 | <6 | 7 | 7 | 92 |
| JUL 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2 | 90 |
| AUG 22... | 180 | 0.2 | <10 | <1 | <1 | <1 | 59 | <6 | 14 | 14 | 83 |

## 02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA

**LOCATION.**--Lat 37°26'10", long 77°03'40", New Kent County, Hydrologic Unit 02080206, on left bank 100 ft downstream from bridge on State Highway 618, 1.1 mi southwest of Providence Forge, and 1.7 mi downstream from Schiminoe Creek.

**DRAINAGE AREA.**--248 mi².

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--January 1942 to current year.

**REVISED RECORDS.**--WSP 1553: 1956. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 6.07 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Oct. 1-18 and Jan. 22. Records good except those for period of no gage-height record, Oct. 1-18, and period with ice effect, Jan. 22, which are fair.

**AVERAGE DISCHARGE.**--43 years, 264 ft³/s, 14.46 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 7,710 ft³/s, Aug. 15, 1955, gage height, 11.67 ft; minimum, 0.70 ft³/s, July 7, 1977; minimum gage height, 1.53 ft, Sept. 13, 1965.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 2,740 ft³/s, Aug. 22, gage height, 9.76 ft; minimum, 4.1 ft³/s, Sept. 22, gage height, 1.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 39 | 228 | 84 | 243 | 215 | 301 | 31 | 92 | 8.2 | 86 | 230 |
| 2 | 28 | 40 | 253 | 92 | 389 | 203 | 263 | 25 | 72 | 7.9 | 79 | 202 |
| 3 | 30 | 37 | 271 | 206 | 553 | 200 | 214 | 40 | 53 | 8.2 | 75 | 196 |
| 4 | 31 | 35 | 377 | 326 | 605 | 201 | 188 | 67 | 39 | 8.9 | 82 | 203 |
| 5 | 29 | 33 | 423 | 414 | 602 | 193 | 175 | 69 | 52 | 8.4 | 94 | 204 |
| 6 | 27 | 40 | 426 | 449 | 697 | 180 | 161 | 66 | 187 | 8.5 | 118 | 188 |
| 7 | 23 | 43 | 392 | 423 | 714 | 165 | 142 | 51 | 177 | 10 | 137 | 162 |
| 8 | 20 | 37 | 353 | 475 | 633 | 152 | 137 | 38 | 199 | 11 | 154 | 144 |
| 9 | 17 | 34 | 317 | 541 | 518 | 146 | 125 | 31 | 189 | 9.8 | 181 | 106 |
| 10 | 15 | 33 | 272 | 501 | 418 | 140 | 113 | 27 | 143 | 9.6 | 134 | 78 |
| 11 | 14 | 35 | 260 | 431 | 347 | 135 | 102 | 23 | 129 | 13 | 102 | 58 |
| 12 | 13 | 41 | 271 | 359 | 337 | 134 | 93 | 18 | 152 | 20 | 72 | 43 |
| 13 | 13 | 45 | 261 | 298 | 402 | 128 | 86 | 16 | 182 | 18 | 58 | 32 |
| 14 | 12 | 49 | 236 | 249 | 453 | 122 | 80 | 13 | 182 | 13 | 50 | 21 |
| 15 | 12 | 53 | 207 | 213 | 481 | 119 | 86 | 11 | 172 | 10 | 51 | 13 |
| 16 | 12 | 54 | 179 | 171 | 467 | 112 | 95 | 9.0 | 161 | 9.0 | 57 | 9.1 |
| 17 | 11 | 53 | 159 | 169 | 545 | 106 | 100 | 8.2 | 142 | 8.2 | 68 | 7.0 |
| 18 | 11 | 51 | 142 | 165 | 545 | 99 | 92 | 8.5 | 137 | 9.6 | 89 | 7.0 |
| 19 | 10 | 76 | 128 | 168 | 488 | 94 | 83 | 7.9 | 152 | 23 | 418 | 6.2 |
| 20 | 9.8 | 112 | 117 | 161 | 398 | 89 | 75 | 7.7 | 154 | 39 | 705 | 5.4 |
| 21 | 9.2 | 115 | 108 | 145 | 317 | 83 | 69 | 7.6 | 129 | 50 | 1210 | 4.7 |
| 22 | 9.4 | 125 | 106 | 140 | 262 | 88 | 65 | 8.6 | 94 | 51 | 2150 | 4.5 |
| 23 | 10 | 122 | 102 | 130 | 229 | 127 | 59 | 8.1 | 71 | 47 | 2270 | 5.9 |
| 24 | 13 | 109 | 97 | 129 | 207 | 154 | 54 | 12 | 53 | 37 | 1540 | 7.8 |
| 25 | 11 | 109 | 95 | 139 | 194 | 175 | 56 | 46 | 35 | 31 | 1090 | 6.7 |
| 26 | 17 | 111 | 93 | 148 | 209 | 168 | 53 | 64 | 23 | 55 | 821 | 10 |
| 27 | 22 | 105 | 90 | 138 | 221 | 158 | 53 | 72 | 16 | 71 | 634 | 431 |
| 28 | 26 | 101 | 87 | 139 | 220 | 151 | 48 | 62 | 11 | 90 | 521 | 725 |
| 29 | 29 | 160 | 86 | 148 | --- | 156 | 42 | 62 | 9.0 | 99 | 420 | 945 |
| 30 | 34 | 191 | 84 | 139 | --- | 230 | 36 | 78 | 8.5 | 82 | 340 | 653 |
| 31 | 37 | --- | 83 | 157 | --- | 266 | --- | 93 | --- | 66 | 275 | --- |
| TOTAL | 581.4 | 2188 | 6303 | 7447 | 11694 | 4689 | 3246 | 1080.6 | 3215.5 | 932.3 | 14081 | 4708.3 |
| MEAN | 18.8 | 72.9 | 203 | 240 | 418 | 151 | 108 | 34.9 | 107 | 30.1 | 454 | 157 |
| MAX | 37 | 191 | 426 | 541 | 714 | 266 | 301 | 93 | 199 | 99 | 2270 | 945 |
| MIN | 9.2 | 33 | 83 | 84 | 194 | 83 | 36 | 7.6 | 8.5 | 7.9 | 50 | 4.5 |
| CFSM | .08 | .29 | .82 | .97 | 1.69 | .61 | .44 | .14 | .43 | .12 | 1.83 | .63 |
| IN. | .09 | .33 | .95 | 1.12 | 1.75 | .70 | .49 | .16 | .48 | .14 | 2.11 | .71 |

CAL YR 1984 TOTAL 138739.4 MEAN 379 MAX 3570 MIN 9.2 CFSM 1.53 IN. 20.81
WTR YR 1985 TOTAL 60166.1 MEAN 165 MAX 2270 MIN 4.5 CFSM .67 IN. 9.02

## 02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-70, 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT 18... | 10:15 | 12 | 120 | 117 | 6.6 | 6.6 | 17.0 | 766 | 10 | 7.2 |
| NOV 16... | 08:30 | 54 | 120 | 115 | 6.6 | 6.8 | 7.0 | 756 | 35 | 10.4 |
| JAN 08... | 10:30 | 468 | 86 | 92 | 6.4 | 6.5 | 4.5 | 765 | 50 | 10.4 |
| FEB 22... | 12:30 | 260 | 145 | 143 | 6.5 | 6.7 | 7.5 | -- | 20 | -- |
| APR 18... | 08:30 | 93 | 130 | 115 | 6.6 | 6.8 | 11.5 | 765 | 50 | 8.6 |
| JUN 17... | 10:00 | 143 | 108 | 104 | 6.3 | 6.7 | 21.0 | 755 | 70 | 7.1 |
| AUG 01... | 09:30 | 89 | 101 | 102 | 6.7 | 7.1 | 24.5 | 763 | 65 | 6.2 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 18... | 74 | 28 | 28 | 8.3 | 1.8 | 9.7 | 1.3 | 13 | 18 |
| NOV 16... | 86 | 27 | 27 | 7.5 | 2.0 | 8.6 | 5.2 | 23 | 3.8 |
| JAN 08... | 80 | 17 | 17 | 4.8 | 1.2 | 7.6 | 2.8 | 8.0 | 11 |
| FEB 22... | -- | 22 | 22 | 6.3 | 1.6 | 15 | 2.2 | 7.0 | 15 |
| APR 18... | 79 | 28 | 28 | 8.1 | 1.9 | 9.7 | 2.4 | 27 | 3.2 |
| JUN 17... | 80 | 25 | 25 | 7.2 | 1.7 | 12 | 0.5 | 23 | 5.9 |
| AUG 01... | 74 | 29 | 29 | 8.7 | 1.7 | 9.5 | 0.5 | 25 | 7.6 |

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 18... | 13 | <0.1 | 7.4 | 79 | 68 | <0.01 | <0.10 | 0.05 | 160 |
| NOV 16... | 19 | <0.1 | 9.8 | 75 | 70 | 0.01 | <0.10 | 0.03 | 580 |
| JAN 08... | 13 | <0.1 | 7.6 | 69 | 53 | 0.03 | <0.10 | 0.02 | 480 |
| FEB 22... | 26 | <0.1 | 1.5 | 102 | 72 | -- | -- | -- | 170 |
| APR 18... | 16 | 0.1 | 2.0 | 64 | 60 | <0.01 | <0.10 | 0.01 | 770 |
| JUN 17... | 13 | 0.1 | 8.8 | 88 | 64 | -- | -- | -- | 620 |
| AUG 01... | 11 | 0.2 | 9.9 | 84 | 65 | <0.01 | 0.15 | 0.02 | 650 |

## 02042720 CHICKAHOMINY RIVER ABOVE WALKERS DAM, AT WALKERS, VA

LOCATION.--Lat 37°24'31", long 76°56'18", New Kent County, Hydrologic Unit 02080206, on left bank 600 ft upstream from Walkers Dam at city of Newport News pumping station, 0.7 mi south of Walkers, and 8.0 mi upstream from Diascund Creek.

DRAINAGE AREA.--301 $mi^2$.

PERIOD OF RECORD.--Water years 1983 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | COLOR (PLAT-INUM-COBALT UNITS) | BARO-METRIC PRES-SURE (MM OF HG) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 08:30 | 125 | 6.9 | 18.0 | 15 | 762 | 6.6 | 70 | 27 | 2 | 7.2 | 2.3 |
| NOV 06... | 08:15 | 120 | 6.5 | 17.0 | 11 | 754 | 11.7 | 122 | 28 | 5 | 7.6 | 2.1 |
| DEC 11... | 09:45 | 112 | 6.7 | 5.0 | 20 | 758 | 10.3 | 81 | 24 | 17 | 6.5 | 1.8 |
| FEB 28... | 08:45 | 150 | 6.6 | 10.0 | 10 | 766 | 9.8 | 86 | 22 | 14 | 6.0 | 1.6 |
| APR 23... | 08:20 | 115 | 6.9 | 22.0 | 30 | 757 | 7.5 | 86 | 26 | 5 | 7.8 | 1.7 |
| MAY 14... | 09:00 | 110 | 6.1 | 23.5 | 30 | 756 | 4.3 | 51 | 30 | 3 | 8.9 | 2.0 |
| JUN 20... | 08:30 | 100 | 6.4 | 26.0 | 40 | 755 | 4.6 | 57 | 26 | 5 | 7.8 | 1.7 |
| JUL 17... | 09:15 | 120 | 6.6 | 27.5 | 35 | 758 | 1.8 | 23 | 29 | 5 | 8.5 | 1.8 |
| AUG 12... | 08:30 | 100 | 6.8 | 25.0 | 40 | 759 | 1.4 | 17 | 26 | 2 | 7.9 | 1.6 |
| SEP 04... | 08:30 | 74 | 6.0 | 25.0 | 10 | 759 | 0.2 | 2 | 22 | 6 | 6.5 | 1.4 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 17... | 12 | 1.6 | 25 | 6.4 | 17 | <0.1 | 3.5 | 65 | <0.10 | <0.01 | 1.1 | 0.02 |
| NOV 06... | 11 | 1.4 | 23 | 7.3 | 14 | <0.1 | 4.4 | 62 | <0.10 | <0.01 | 0.7 | 0.04 |
| DEC 11... | 8.5 | 3.9 | 7.0 | 16 | 17 | <0.1 | 8.4 | 67 | <0.10 | 0.03 | 0.5 | 0.03 |
| FEB 28... | 15 | 2.0 | 8.0 | 13 | 25 | 0.1 | 1.9 | 70 | -- | -- | 0.9 | 0.029 |
| APR 23... | 11 | 1.8 | 21 | 5.5 | 16 | <0.1 | 1.6 | 58 | 0.177 | <0.01 | 0.9 | 0.063 |
| MAY 14... | 9.9 | 2.0 | 27 | 4.3 | 17 | <0.1 | 1 | 62 | 0.016 | 0.05 | 0.5 | 0.037 |
| JUN 20... | 9.1 | 1.2 | 21 | 8.5 | 11 | <0.1 | 6.1 | 59 | 0.026 | 0.03 | 0.6 | 0.049 |
| JUL 17... | 11 | 1.0 | 24 | 6.4 | 14 | <0.1 | 6.9 | 65 | 0.05 | 0.08 | 0.6 | 0.051 |
| AUG 12... | 9.5 | 0.6 | 24 | 5.4 | 11 | 0.1 | 10 | 61 | 0.034 | 0.10 | 0.5 | 0.054 |
| SEP 04... | 5.6 | 1.5 | 16 | 7.0 | 8.6 | 0.1 | 8.0 | 50 | 0.023 | 0.10 | 0.7 | 0.062 |

## 02042720 CHICKAHOMINY RIVER ABOVE WALKERS DAM, AT WALKERS, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | CADMIUM DIS-SOLVED (UG/L AS CD) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY DIS-SOLVED (UG/L AS HG) | ZINC, DIS-SOLVED (UG/L AS ZN) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 17... | <0.01 | <0.01 | <1 | <1 | -- | 42 | 3 | -- | 1 | <0.1 | <3 | 8.4 |
| NOV | | | | | | | | | | | | |
| 06... | 0.03 | <0.01 | <1 | <1 | -- | 85 | 1 | -- | 6 | 0.3 | 11 | 7.2 |
| DEC | | | | | | | | | | | | |
| 11... | 0.02 | 0.02 | <1 | <1 | -- | 240 | 2 | -- | 54 | 0.8 | 17 | 7.4 |
| FEB | | | | | | | | | | | | |
| 28... | 0.017 | -- | <1 | 1 | 470 | 140 | <1 | 50 | 33 | 0.2 | 15 | 7.4 |
| APR | | | | | | | | | | | | |
| 23... | 0.018 | 0.014 | <1 | 1 | 790 | 350 | 1 | 70 | 8 | 0.1 | 10 | 8.5 |
| MAY | | | | | | | | | | | | |
| 14... | 0.011 | 0.009 | <1 | 1 | 610 | 140 | 3 | 150 | 26 | 0.2 | 24 | 8.9 |
| JUN | | | | | | | | | | | | |
| 20... | 0.03 | 0.008 | <1 | 1 | 820 | 360 | 2 | 290 | 210 | <0.1 | <3 | 10 |
| JUL | | | | | | | | | | | | |
| 17... | 0.02 | 0.01 | <1 | 2 | 1100 | 560 | 2 | 700 | 690 | <0.1 | <3 | 12 |
| AUG | | | | | | | | | | | | |
| 12... | 0.034 | 0.02 | <1 | 2 | 1400 | 450 | <1 | 230 | 78 | 0.1 | 6 | 9.2 |
| SEP | | | | | | | | | | | | |
| 04... | 0.036 | 0.016 | <1 | 2 | 2600 | 860 | <1 | 410 | 340 | 0.1 | 7 | 20 |

## 02042734 DIASCUND CREEK RESERVOIR OFF TIMBER SWAMP, NEAR WALKERS, VA

**LOCATION.**--Lat 37°25'48", long 76°54'19", New Kent County, Hydrologic Unit 02080206, in Diascund Creek Reservoir at mouth of Timber Swamp, 0.3 mi west of bridge on State Highway 603, and 2.1 mi east of Walkers.

**PERIOD OF RECORD.**--Water years 1983 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | SAM-PLING DEPTH (FEET) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 17... | 09:45 | 3.00 | 75 | 7.0 | 18.5 | 762 | 7.4 |
| 17... | 10:00 | 10.0 | 79 | 6.9 | 18.0 | 762 | 3.8 |
| NOV | | | | | | | |
| 07... | 08:45 | 3.00 | 80 | 6.7 | 16.0 | 765 | 6.5 |
| 07... | 08:55 | 16.0 | 78 | 6.8 | 16.0 | 765 | 6.3 |
| DEC | | | | | | | |
| 11... | 11:00 | 3.00 | 75 | 6.3 | 7.0 | 758 | 11.0 |
| 11... | 11:15 | 18.0 | 83 | 6.3 | 7.0 | 758 | 10.6 |
| FEB | | | | | | | |
| 28... | 10:55 | 3.00 | 78 | 6.6 | 8.5 | 767 | 12.2 |
| 28... | 11:00 | 10.0 | 69 | 6.7 | 8.0 | 767 | 12.0 |
| 28... | 11:05 | 18.0 | 69 | 6.8 | 8.0 | 767 | 11.8 |
| APR | | | | | | | |
| 23... | 09:30 | 3.00 | 80 | 6.7 | 24.5 | 757 | 9.3 |
| 23... | 09:35 | 10.0 | 80 | 6.9 | 17.5 | 757 | 7.4 |
| 23... | 09:40 | 18.0 | 87 | 6.2 | 14.0 | 757 | 2.8 |
| MAY | | | | | | | |
| 14... | 10:15 | 3.00 | 75 | 6.7 | 27.5 | 756 | 8.3 |
| 14... | 10:30 | 10.0 | 88 | 6.4 | 22.5 | 756 | 5.7 |
| 14... | 10:45 | 18.0 | 80 | 6.6 | 14.0 | 756 | 0 |
| JUN | | | | | | | |
| 20... | 09:15 | 3.00 | 78 | 6.5 | 27.5 | 755 | 8.7 |
| 20... | 09:30 | 10.0 | 83 | 6.6 | 26.0 | 755 | 6.5 |
| 20... | 09:45 | 18.0 | 90 | 6.4 | 19.0 | 755 | 0 |
| JUL | | | | | | | |
| 17... | 10:00 | 3.00 | 80 | 6.8 | 30.0 | 758 | 7.6 |
| 17... | 10:15 | 10.0 | 85 | 6.4 | 26.5 | 758 | 2.0 |
| 17... | 10:30 | 18.0 | 125 | 6.5 | 19.0 | 758 | 0 |
| AUG | | | | | | | |
| 12... | 09:45 | 3.00 | 82 | 6.9 | 29.5 | 759 | 8.7 |
| 12... | 10:00 | 10.0 | 85 | 6.7 | 27.0 | 759 | 1.5 |
| 12... | 10:15 | 18.0 | 180 | 6.4 | 18.5 | 759 | 0 |
| SEP | | | | | | | |
| 04... | 09:30 | 3.00 | 72 | 6.5 | 28.0 | 759 | 7.5 |
| 04... | 09:45 | 10.0 | 90 | 6.3 | 27.0 | 759 | 3.6 |
| 04... | 10:00 | 18.0 | 98 | 6.3 | 22.5 | 759 | 0 |

02042734 DIASCUND CREEK RESERVOIR OFF TIMBER SWAMP, NEAR WALKERS, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 17... | 79 | <0.10 | 0.02 | -- | 0.03 | <0.01 |
| 17... | 40 | <0.10 | 0.02 | -- | 0.02 | 0.01 |
| NOV | | | | | | |
| 07... | 66 | <0.10 | 0.17 | -- | 0.02 | <0.01 |
| 07... | 64 | <0.10 | 0.14 | -- | 0.02 | <0.01 |
| DEC | | | | | | |
| 11... | 91 | <0.10 | 0.12 | -- | 0.02 | 0.02 |
| 11... | 88 | <0.10 | 0.10 | -- | 0.01 | <0.01 |
| FEB | | | | | | |
| 28... | 104 | -- | -- | 1.3 | 0.04 | -- |
| 28... | 101 | -- | -- | 0.8 | 0.047 | -- |
| 28... | 99 | -- | -- | 0.8 | 0.04 | -- |
| APR | | | | | | |
| 23... | 112 | <0.01 | <0.01 | 0.8 | 0.03 | 0.01 |
| 23... | 78 | <0.01 | 0.08 | 0.9 | 0.022 | 0.005 |
| 23... | 27 | <0.01 | 0.15 | 0.8 | 0.02 | 0.005 |
| MAY | | | | | | |
| 14... | 106 | 0.015 | <0.01 | 0.3 | 0.028 | 0.014 |
| 14... | 66 | 0.027 | 0.15 | 0.5 | 0.026 | 0.015 |
| 14... | 0 | <0.01 | 0.62 | 0.7 | 0.022 | 0.016 |
| JUN | | | | | | |
| 20... | 111 | <0.01 | <0.01 | 0.8 | 0.027 | 0.014 |
| 20... | 81 | <0.01 | 0.22 | 0.7 | 0.024 | 0.005 |
| 20... | 0 | 0.016 | 0.75 | 0.6 | 0.032 | 0.003 |
| JUL | | | | | | |
| 17... | 101 | 0.018 | 0.13 | 0.7 | 0.033 | 0.009 |
| 17... | 25 | 0.013 | 0.20 | 0.5 | 0.031 | 0.011 |
| 17... | 0 | <0.01 | 0.81 | 0.6 | 0.029 | 0.008 |
| AUG | | | | | | |
| 12... | 115 | 0.018 | <0.01 | 0.6 | 0.032 | 0.03 |
| 12... | 19 | <0.01 | 0.02 | 0.6 | 0.035 | 0.018 |
| 12... | 0 | 0.026 | 0.89 | 2.2 | 0.043 | 0.023 |
| SEP | | | | | | |
| 04... | 96 | 0.061 | 0.03 | 0.5 | 0.029 | 0.009 |
| 04... | 45 | 0.047 | 0.04 | 0.6 | 0.025 | 0.003 |
| 04... | 0 | <0.01 | 0.70 | 0.8 | 0.031 | 0.002 |

## 02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA

LOCATION.--Lat 37°25'51", long 76°53'38", New Kent County, Hydrologic Unit 02080206, in Diascund Creek Reservoir 0.1 mi northwest of city of Newport News pumping station, 0.4 mi east of bridge on State Highway 603, and 2.8 mi east of Walkers.

PERIOD OF RECORD.--Water years 1983 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | SAMPLING DEPTH (FEET) | SPECIFIC CONDUCTANCE (US/CM) | PH (STANDARD UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | BAROMETRIC PRESSURE (MM OF HG) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 17... | 10:15 | 3.00 | 82 | 7.1 | 19.0 | 15 | 762 | 7.9 | 85 | 32 | 3 |
| 17... | 10:30 | 18.0 | 81 | 7.0 | 17.5 | 20 | 762 | 4.2 | 44 | 32 | 2 |
| NOV | | | | | | | | | | | |
| 07... | 09:15 | 3.00 | 83 | 6.8 | 16.0 | 10 | 765 | 6.2 | 63 | 31 | 4 |
| 07... | 09:35 | 18.0 | 85 | 6.7 | 16.0 | 12 | 765 | 6.1 | 62 | 31 | 3 |
| DEC | | | | | | | | | | | |
| 11... | 11:30 | 3.00 | 81 | 6.9 | 7.0 | 10 | 758 | 11.6 | 96 | 28 | 3 |
| 11... | 11:45 | 18.0 | 80 | 6.9 | 7.0 | 5 | 758 | 10.8 | 89 | 28 | 3 |
| FEB | | | | | | | | | | | |
| 28... | 11:30 | 3.00 | 85 | 6.8 | 8.0 | -- | 767 | 12.2 | 102 | -- | -- |
| 28... | 11:45 | 10.0 | 83 | 6.9 | 8.0 | -- | 767 | 11.8 | 99 | -- | -- |
| 28... | 12:00 | 18.0 | 80 | 6.8 | 8.0 | -- | 767 | 11.6 | 97 | -- | -- |
| APR | | | | | | | | | | | |
| 23... | 09:55 | 3.00 | 80 | 6.5 | 24.5 | -- | 757 | 9.5 | 115 | -- | -- |
| 23... | 10:00 | 10.0 | 82 | 6.6 | 19.0 | -- | 757 | 7.8 | 85 | -- | -- |
| 23... | 10:10 | 18.0 | 90 | 6.3 | 14.5 | -- | 757 | 4.7 | 46 | -- | -- |
| MAY | | | | | | | | | | | |
| 14... | 11:00 | 3.00 | 87 | 6.6 | 27.5 | -- | 756 | 7.9 | 101 | -- | -- |
| 14... | 11:15 | 10.0 | 95 | 6.5 | 22.5 | -- | 756 | 6.6 | 77 | -- | -- |
| 14... | 11:25 | 18.0 | 90 | 6.3 | 15.0 | -- | 756 | 0 | 0 | -- | -- |
| JUN | | | | | | | | | | | |
| 20... | 10:00 | 3.00 | 81 | 6.8 | 27.5 | -- | 755 | 7.5 | 96 | -- | -- |
| 20... | 10:15 | 10.0 | 86 | 6.6 | 27.0 | -- | 755 | 7.6 | 96 | -- | -- |
| 20... | 10:30 | 18.0 | 130 | 6.4 | 19.0 | -- | 755 | 0 | 0 | -- | -- |
| JUL | | | | | | | | | | | |
| 17... | 10:45 | 3.00 | 83 | 7.2 | 30.0 | -- | 758 | 7.8 | 104 | -- | -- |
| 17... | 11:00 | 10.0 | 95 | 6.9 | 29.0 | -- | 758 | 5.3 | 69 | -- | -- |
| 17... | 11:15 | 18.0 | 189 | 6.8 | 19.0 | -- | 758 | 0 | 0 | -- | -- |
| AUG | | | | | | | | | | | |
| 12... | 10:30 | 3.00 | 85 | 6.9 | 29.5 | -- | 759 | 8.8 | 116 | -- | -- |
| 12... | 10:45 | 10.0 | 85 | 7.0 | 21.0 | -- | 759 | 0.6 | 7 | -- | -- |
| 12... | 11:00 | 18.0 | 195 | 6.6 | 19.5 | -- | 759 | 0 | 0 | -- | -- |
| SEP | | | | | | | | | | | |
| 04... | 10:15 | 3.00 | 77 | 6.6 | 28.0 | -- | 759 | 7.8 | 100 | -- | -- |
| 04... | 10:30 | 10.0 | 88 | 6.5 | 27.0 | -- | 759 | 4.1 | 52 | -- | -- |
| 04... | 10:45 | 18.0 | 147 | 6.4 | 22.5 | -- | 759 | 0 | 0 | -- | -- |

### 02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 17... | 11 | 0.98 | 2.8 | 1.1 | 29 | 2.0 | 4.8 | <0.1 | 3.1 | 44 | <0.10 |
| 17... | 11 | 1.0 | 2.8 | 1.1 | 30 | 2.2 | 4.7 | <0.1 | 3.4 | 45 | <0.10 |
| NOV | | | | | | | | | | | |
| 07... | 11 | 0.96 | 2.9 | 1.1 | 27 | 3.1 | 4.9 | <0.1 | 3.1 | 44 | <0.10 |
| 07... | 11 | 0.91 | 3.0 | 1.0 | 28 | 2.6 | 4.8 | <0.1 | 3.0 | 44 | <0.10 |
| DEC | | | | | | | | | | | |
| 11... | 9.8 | 0.9 | 3.0 | 1.0 | 25 | 3.1 | 5.1 | <0.1 | 2.9 | 41 | <0.10 |
| 11... | 9.8 | 0.93 | 3.0 | 1.0 | 25 | 3.0 | 5.2 | <0.1 | 2.9 | 41 | 0.11 |
| FEB | | | | | | | | | | | |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | 3.8 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | 3.8 | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | 3.8 | -- | -- |
| APR | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | 20 | -- | 7.7 | -- | 2.6 | -- | <0.01 |
| 23... | -- | -- | -- | -- | 20 | -- | 8.3 | -- | 2.9 | -- | 0.034 |
| 23... | -- | -- | -- | -- | 21 | -- | 7.5 | -- | 3.3 | -- | <0.01 |
| MAY | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | 21 | -- | 8.1 | -- | 1.7 | -- | 0.027 |
| 14... | -- | -- | -- | -- | 23 | -- | 8.4 | -- | 2.3 | -- | 0.036 |
| 14... | -- | -- | -- | -- | 28 | -- | 8.6 | -- | 4.0 | -- | <0.01 |
| JUN | | | | | | | | | | | |
| 20... | -- | -- | -- | -- | 24 | -- | 7.4 | -- | 2.6 | -- | <0.01 |
| 20... | -- | -- | -- | -- | 25 | -- | 7.7 | -- | 2.8 | -- | <0.01 |
| 20... | -- | -- | -- | -- | 38 | -- | 9.0 | -- | 5.1 | -- | <0.10 |
| JUL | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | 26 | -- | 7.5 | -- | 3.1 | -- | 0.015 |
| 17... | -- | -- | -- | -- | 25 | -- | 7.6 | -- | 3.3 | -- | <0.01 |
| 17... | -- | -- | -- | -- | 47 | -- | 9.8 | -- | 6.8 | -- | 0.07 |
| AUG | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | 26 | -- | 7.4 | -- | 3.4 | -- | 0.022 |
| 12... | -- | -- | -- | -- | 21 | -- | 7.4 | -- | 3.4 | -- | 0.04 |
| 12... | -- | -- | -- | -- | 53 | -- | 9.9 | -- | 6.9 | -- | 0.026 |
| SEP | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 25 | -- | 7.5 | -- | 3.4 | -- | 0.057 |
| 04... | -- | -- | -- | -- | 26 | -- | 7.6 | -- | 3.5 | -- | 0.066 |
| 04... | -- | -- | -- | -- | 44 | -- | 9.3 | -- | 6.6 | -- | <0.01 |

## 02042746 DIASCUND CREEK RESERVOIR OFF PUMP STATION, NEAR WALKERS, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 17... | <0.01 | 0.8 | 0.02 | <0.01 | <0.01 | -- | 490 | -- | 1 | 7.8 |
| 17... | 0.09 | 1.0 | 0.02 | <0.01 | <0.01 | -- | 530 | -- | 59 | 7.2 |
| NOV | | | | | | | | | | |
| 07... | 0.16 | 0.8 | 0.03 | 0.03 | <0.01 | -- | 610 | -- | 150 | 7.1 |
| 07... | 0.15 | 0.8 | 0.03 | 0.01 | <0.01 | -- | 180 | -- | 99 | 7.5 |
| DEC | | | | | | | | | | |
| 11... | 0.19 | 0.6 | 0.02 | 0.01 | 0.01 | -- | 150 | -- | 4 | 6.8 |
| 11... | 0.13 | 0.6 | 0.01 | <0.01 | <0.01 | -- | 130 | -- | 4 | -- |
| FEB | | | | | | | | | | |
| 28... | -- | 0.7 | 0.036 | 0.019 | -- | 530 | 140 | 50 | 10 | 6.9 |
| 28... | -- | 1.7 | 0.042 | 0.016 | -- | 510 | 130 | 50 | 9 | 6.5 |
| 28... | -- | 0.6 | 0.032 | 0.022 | -- | 580 | 150 | 50 | 10 | 6.5 |
| APR | | | | | | | | | | |
| 23... | <0.01 | 0.9 | 0.046 | 0.016 | 0.013 | 500 | 210 | 40 | 5 | 7.7 |
| 23... | 0.02 | 0.7 | 0.027 | 0.022 | 0.026 | 510 | 210 | 40 | 4 | 7.1 |
| 23... | 0.16 | 0.8 | 0.031 | 0.009 | <0.001 | 650 | 200 | 160 | 120 | 6.9 |
| MAY | | | | | | | | | | |
| 14... | 0.02 | 0.3 | 0.026 | 0.02 | 0.017 | 340 | 93 | 110 | 28 | 7.5 |
| 14... | 0.09 | 0.6 | 0.024 | 0.012 | 0.012 | 520 | 180 | 180 | 84 | 7.6 |
| 14... | 0.41 | 0.7 | 0.023 | 0.025 | 0.023 | 2200 | 2000 | 1600 | 1400 | 7.5 |
| JUN | | | | | | | | | | |
| 20... | <0.01 | 0.5 | 0.023 | 0.016 | <0.001 | 270 | 65 | 130 | 38 | 8.5 |
| 20... | <0.01 | 0.5 | 0.028 | 0.017 | 0.002 | 490 | 86 | 270 | 120 | 9.9 |
| 20... | 0.67 | 1.0 | 0.028 | 0.014 | 0.01 | 8500 | 8300 | 2300 | 2200 | 14 |
| JUL | | | | | | | | | | |
| 17... | 0.13 | 0.7 | 0.029 | 0.015 | 0.005 | 210 | 40 | 80 | 4 | 10 |
| 17... | <0.01 | 0.5 | 0.028 | 0.022 | 0.002 | 350 | 73 | 210 | 110 | 10 |
| 17... | 0.80 | 1.7 | 0.029 | 0.023 | 0.008 | 18000 | 17000 | 2900 | 2800 | 15 |
| AUG | | | | | | | | | | |
| 12... | <0.01 | 0.7 | 0.034 | 0.018 | 0.011 | 410 | 24 | 150 | 13 | 9.0 |
| 12... | <0.01 | 0.6 | 0.038 | 0.031 | 0.031 | 520 | 29 | 90 | 4 | 8.6 |
| 12... | 0.78 | 1.7 | 0.048 | 0.025 | 0.019 | 18000 | 16000 | 2900 | 2800 | 14 |
| SEP | | | | | | | | | | |
| 04... | 0.03 | 0.6 | 0.025 | 0.017 | 0.005 | 290 | 75 | 150 | 66 | 10 |
| 04... | 0.04 | 0.6 | 0.022 | 0.01 | 0.01 | 450 | 120 | 190 | 39 | 7.1 |
| 04... | 0.68 | 1.4 | 0.024 | 0.015 | 0.008 | 18000 | 15000 | 2600 | 2300 | 14 |

## 0204275415 LITTLE CREEK RESERVOIR INFALL NEAR NORGE, VA

LOCATION.--Lat 37°22'17", long 76°49'06", James City County, Hydrologic Unit 02080206, in north-northeastern arm of Little Creek Reservoir, 0.8 mi northeast of city of Newport News pumping station, and 2.7 mi west of Norge.

PERIOD OF RECORD.--July 1983 to December 1984 (discontinued).

### WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

| DATE | TIME | SAMPLING DEPTH (FEET) | SPECIFIC CONDUCTANCE (US/CM) | PH (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 10:05 | 1.00 | 112 | 6.8 | 18.5 | 759 | 9.2 | 99 | <0.10 | <0.01 | 0.02 | <0.01 |
| NOV | | | | | | | | | | | | |
| 08... | 10:00 | 1.00 | 108 | 6.7 | 15.0 | 766 | 8.7 | 86 | <0.10 | <0.01 | 0.05 | <0.01 |
| DEC | | | | | | | | | | | | |
| 12... | 10:15 | 1.00 | 112 | 6.6 | 8.0 | 755 | 9.6 | 82 | <0.10 | 0.16 | 0.02 | <0.01 |

## 0204275420 LITTLE CREEK RESERVOIR (NORTH) NEAR NORGE, VA

LOCATION.--Lat 37°22'13", long 76°49'42", James City County, Hydrologic Unit 02080206, in northern arm of Little Creek Reservoir, 0.6 mi north of city of Newport News pumping station, 1.5 mi south of Toano, and 3.3 mi west of Norge.

PERIOD OF RECORD.--August 1983 to December 1984 (discontinued).

### WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

| DATE | TIME | SAMPLING DEPTH (FEET) | SPECIFIC CONDUCTANCE (US/CM) | PH (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 09:35 | 3.00 | 105 | 6.8 | 19.5 | 759 | 9.6 | 105 | <0.10 | 0.02 | <0.01 | <0.01 |
| 18... | 09:40 | 10.0 | 105 | 7.0 | 18.5 | 759 | 9.2 | 99 | <0.10 | <0.01 | <0.01 | <0.01 |
| 18... | 09:45 | 20.0 | 95 | 7.0 | 18.0 | 759 | 7.3 | 77 | <0.10 | <0.01 | <0.01 | <0.01 |
| NOV | | | | | | | | | | | | |
| 08... | 09:25 | 3.00 | 105 | 6.7 | 16.0 | 766 | 6.4 | 64 | <0.10 | 0.32 | <0.01 | <0.01 |
| 08... | 09:30 | 10.0 | 108 | 6.8 | 16.0 | 766 | 6.4 | 64 | <0.10 | 0.12 | <0.01 | <0.01 |
| 08... | 09:35 | 20.0 | 108 | 6.6 | 15.5 | 766 | 6.3 | 63 | <0.10 | 0.02 | <0.01 | <0.01 |
| DEC | | | | | | | | | | | | |
| 12... | 09:35 | 3.00 | 105 | 6.7 | 8.5 | 755 | 9.4 | 81 | <0.10 | 0.19 | <0.01 | <0.01 |
| 12... | 09:45 | 10.0 | 115 | 6.6 | 8.5 | 755 | 9.2 | 79 | <0.10 | 0.64 | <0.01 | <0.01 |
| 12... | 09:50 | 20.0 | 115 | 6.4 | 8.5 | 755 | 9.0 | 78 | <0.10 | 0.17 | <0.01 | <0.01 |

## 0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA

LOCATION.--Lat 37°21'43", long 76°49'42", James City County, Hydrologic Unit 02080206, near city of Newport News pumping station in north-central arm of Little Creek Reservoir, 1.8 mi south of Toano, and 3.3 mi west of Norge.

PERIOD OF RECORD.--Water years 1983 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | SAMPLING DEPTH (FEET) | SPECIFIC CONDUCTANCE (US/CM) | PH (STANDARD UNITS) | TEMPERATURE (DEG C) | COLOR (PLATINUM-COBALT UNITS) | BAROMETRIC PRESSURE (MM OF HG) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 18... | 08:45 | 3.00 | 100 | 7.3 | 19.0 | -- | 759 | 9.3 | 101 | -- | -- |
| 18... | 09:00 | 10.0 | 100 | 7.2 | 18.5 | 10 | 759 | 8.9 | 95 | 30 | 6 |
| 18... | 09:10 | 20.0 | 108 | 7.3 | 18.0 | -- | 759 | 7.0 | 74 | -- | -- |
| 18... | 09:15 | 30.0 | 155 | 6.4 | 13.5 | -- | 759 | 0 | -- | -- | -- |
| 18... | 09:20 | 40.0 | 170 | 6.3 | 12.0 | 240 | 759 | 0 | -- | 34 | -- |
| NOV | | | | | | | | | | | |
| 08... | 08:30 | 3.00 | 105 | 6.9 | 16.0 | -- | 766 | 6.5 | 66 | -- | -- |
| 08... | 08:35 | 10.0 | 108 | 6.9 | 16.0 | 10 | 766 | 6.5 | 66 | 29 | 5 |
| 08... | 08:45 | 20.0 | 110 | 6.9 | 16.0 | -- | 766 | 6.4 | 64 | -- | -- |
| 08... | 09:00 | 30.0 | 138 | 6.6 | 14.0 | -- | 766 | 0 | -- | -- | -- |
| 08... | 09:10 | 40.0 | 168 | 6.6 | 12.0 | 280 | 766 | 0 | -- | 34 | 1 |
| DEC | | | | | | | | | | | |
| 12... | 09:00 | 3.00 | 120 | 6.5 | 8.5 | -- | 755 | 9.0 | 78 | -- | -- |
| 12... | 09:05 | 10.0 | 110 | 6.8 | 8.5 | 10 | 755 | 9.0 | 78 | 30 | 5 |
| 12... | 09:10 | 20.0 | 125 | 6.6 | 8.5 | -- | 755 | 8.8 | 76 | -- | -- |
| 12... | 09:15 | 30.0 | 120 | 6.8 | 8.5 | -- | 755 | 8.8 | 76 | -- | -- |
| 12... | 09:20 | 40.0 | 120 | 6.8 | 8.0 | 15 | 755 | 8.8 | 75 | 30 | 5 |
| MAR | | | | | | | | | | | |
| 01... | 10:15 | 3.00 | 105 | 6.9 | 6.5 | -- | 761 | 13.7 | 112 | -- | -- |
| 01... | 10:30 | 10.0 | 105 | 6.5 | 6.5 | -- | 761 | 13.6 | 111 | -- | -- |
| 01... | 10:45 | 20.0 | 105 | 6.7 | 6.0 | -- | 761 | 13.4 | 108 | -- | -- |
| 01... | 11:00 | 30.0 | 105 | 6.8 | 5.0 | -- | 761 | 13.0 | 102 | -- | -- |
| 01... | 11:15 | 40.0 | 105 | 7.0 | 5.0 | -- | 761 | 12.7 | 100 | -- | -- |
| APR | | | | | | | | | | | |
| 23... | 11:30 | 3.00 | 100 | 6.8 | 23.5 | -- | 757 | 9.3 | 110 | -- | -- |
| 23... | 11:45 | 10.0 | 100 | 6.8 | 18.0 | -- | 757 | 10.4 | 111 | -- | -- |
| 23... | 11:50 | 20.0 | 125 | 6.5 | 12.5 | -- | 757 | 9.1 | 86 | -- | -- |
| 23... | 12:00 | 30.0 | 120 | 6.8 | 10.0 | -- | 757 | 8.4 | 75 | -- | -- |
| 23... | 12:05 | 40.0 | 130 | 7.0 | 10.0 | -- | 757 | 7.9 | 70 | -- | -- |
| MAY | | | | | | | | | | | |
| 14... | 12:30 | 3.00 | 110 | 6.6 | 27.5 | -- | 756 | 8.2 | 105 | -- | -- |
| 14... | 12:35 | 10.0 | 120 | 6.7 | 23.0 | -- | 756 | 8.6 | 101 | -- | -- |
| 14... | 12:45 | 20.0 | 130 | 6.7 | 13.0 | -- | 756 | 7.7 | 74 | -- | -- |
| 14... | 12:50 | 30.0 | 130 | 6.1 | 10.5 | -- | 756 | 4.7 | 42 | -- | -- |
| 14... | 13:00 | 40.0 | 130 | 6.1 | 10.0 | -- | 756 | 3.2 | 29 | -- | -- |
| JUN | | | | | | | | | | | |
| 20... | 11:30 | 3.00 | 115 | 6.8 | 28.0 | -- | 755 | 7.6 | 98 | -- | -- |
| 20... | 11:45 | 10.0 | 125 | 6.7 | 27.5 | -- | 755 | 7.5 | 96 | -- | -- |
| 20... | 12:00 | 20.0 | 115 | 6.8 | 16.0 | -- | 755 | 7.6 | 78 | -- | -- |
| 20... | 12:15 | 30.0 | 140 | 6.8 | 10.5 | -- | 755 | 1.0 | 9 | -- | -- |
| 20... | 12:30 | 40.0 | 153 | 6.0 | 9.0 | -- | 755 | 0 | -- | -- | -- |
| JUL | | | | | | | | | | | |
| 17... | 12:00 | 3.00 | 110 | 6.9 | 30.0 | -- | 758 | 7.8 | 104 | -- | -- |
| 17... | 12:15 | 10.0 | 115 | 6.9 | 29.5 | -- | 758 | 7.9 | 104 | -- | -- |
| 17... | 12:30 | 20.0 | 120 | 6.9 | 17.5 | -- | 758 | 7.4 | 78 | -- | -- |
| 17... | 12:45 | 30.0 | 156 | 6.6 | 10.0 | -- | 758 | 0 | -- | -- | -- |
| 17... | 13:00 | 40.0 | 145 | 6.6 | 8.5 | -- | 758 | 0 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 12... | 12:00 | 3.00 | 119 | 7.1 | 29.5 | -- | 759 | 11.7 | 154 | -- | -- |
| 12... | 12:15 | 10.0 | 115 | 6.9 | 29.0 | -- | 759 | 11.7 | 153 | -- | -- |
| 12... | 12:30 | 20.0 | 153 | 6.7 | 22.0 | -- | 759 | 5.9 | 68 | -- | -- |
| 12... | 12:45 | 30.0 | 160 | 6.4 | 11.0 | -- | 759 | 0 | -- | -- | -- |
| 12... | 13:00 | 40.0 | 165 | 6.5 | 10.0 | -- | 759 | 0 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 04... | 11:30 | 3.00 | 101 | 6.6 | 28.5 | -- | 759 | 7.5 | 97 | -- | -- |
| 04... | 11:45 | 10.0 | 100 | 6.9 | 28.0 | -- | 759 | 7.6 | 98 | -- | -- |
| 04... | 12:00 | 20.0 | 101 | 6.8 | 25.0 | -- | 759 | 5.1 | 62 | -- | -- |
| 04... | 12:15 | 30.0 | 119 | 6.4 | 12.0 | -- | 759 | 0 | -- | -- | -- |
| 04... | 12:30 | 40.0 | 148 | 6.4 | 9.5 | -- | 759 | 0 | -- | -- | -- |

## 0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 18... | 9.4 | 1.6 | 6.5 | 1.5 | 24 | 6.8 | 11 | 0.1 | 3.1 | 55 | <0.10 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 18... | 11 | 1.7 | 6.6 | 1.9 | 36 | 5.4 | 13 | 0.1 | 4.5 | 82 | <0.10 |
| NOV | | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 08... | 8.9 | 1.7 | 7.6 | 1.5 | 24 | 7.1 | 12 | <0.1 | 3.5 | 57 | <0.10 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 08... | 11 | 1.7 | 7.0 | 2.0 | 34 | 6.3 | 13 | <0.1 | 4.5 | 83 | <0.10 |
| DEC | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 12... | 9.3 | 1.6 | 7.3 | 1.6 | 25 | 7.0 | 12 | <0.1 | 3.6 | 59 | <0.10 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <0.10 |
| 12... | 9.4 | 1.6 | 7.3 | 1.6 | 25 | 6.9 | 11 | <0.1 | 3.5 | 57 | <0.10 |
| MAR | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 3.1 | -- | -- |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 3.0 | -- | -- |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 3.1 | -- | -- |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 3.2 | -- | -- |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | 3.1 | -- | -- |
| APR | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | 2.2 | -- | 0.05 |
| 23... | -- | -- | -- | -- | 24 | -- | 11 | -- | 2.3 | -- | 0.049 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | 2.7 | -- | 0.10 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | 2.9 | -- | 0.165 |
| 23... | -- | -- | -- | -- | 24 | -- | 12 | -- | 2.9 | -- | 0.091 |
| MAY | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | 1.6 | -- | 0.04 |
| 14... | -- | -- | -- | -- | 25 | -- | 11 | -- | 1.6 | -- | 0.052 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | 2.5 | -- | 0.122 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | 3.0 | -- | 0.112 |
| 14... | -- | -- | -- | -- | 26 | -- | 10 | -- | 3.2 | -- | 0.078 |
| JUN | | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | 0.4 | -- | <0.01 |
| 20... | -- | -- | -- | -- | 25 | -- | 11 | -- | 0.4 | -- | <0.01 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | 1.6 | -- | 0.073 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | 3.1 | -- | 0.022 |
| 20... | -- | -- | -- | -- | 29 | -- | 9.7 | -- | 3.3 | -- | <0.01 |
| JUL | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | 0.3 | -- | 0.052 |
| 17... | -- | -- | -- | -- | 26 | -- | 12 | -- | 0.3 | -- | <0.01 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | 1.1 | -- | <0.01 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | 3.3 | -- | <0.01 |
| 17... | -- | -- | -- | -- | 29 | -- | 12 | -- | 3.5 | -- | 0.127 |
| AUG | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | 0.4 | -- | 0.03 |
| 12... | -- | -- | -- | -- | 25 | -- | 12 | -- | 0.4 | -- | 0.017 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | 1.1 | -- | 0.021 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | 3.5 | -- | 0.017 |
| 12... | -- | -- | -- | -- | 32 | -- | 13 | -- | 4.0 | -- | 0.021 |
| SEP | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | 0.5 | -- | 0.044 |
| 04... | -- | -- | -- | -- | 25 | -- | 12 | -- | 0.5 | -- | 0.106 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | 0.7 | -- | 0.063 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | 3.3 | -- | 0.055 |
| 04... | -- | -- | -- | -- | 35 | -- | 12 | -- | 4.2 | -- | 0.084 |

## 0204275430 LITTLE CREEK RESERVOIR (NORTH CENTRAL) NEAR NORGE, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 18... | 0.01 | 1.3 | <0.01 | <0.01 | <0.01 | -- | 120 | -- | 80 | -- |
| 18... | <0.01 | 0.7 | <0.01 | <0.01 | <0.01 | -- | 110 | -- | 64 | -- |
| 18... | <0.01 | 0.8 | <0.01 | <0.01 | <0.01 | -- | 150 | -- | 60 | 7.4 |
| 18... | 0.72 | 1.1 | <0.01 | <0.01 | <0.01 | -- | 9900 | -- | 1600 | -- |
| 18... | 0.97 | 1.6 | <0.01 | <0.01 | <0.01 | -- | 14000 | -- | 1300 | 6.9 |
| NOV | | | | | | | | | | |
| 08... | 0.06 | 0.9 | 0.02 | <0.01 | <0.01 | -- | 140 | -- | 150 | -- |
| 08... | 0.05 | 0.8 | 0.01 | <0.01 | <0.01 | -- | 170 | -- | 140 | -- |
| 08... | 0.07 | 0.5 | 0.01 | <0.01 | <0.01 | -- | 80 | -- | 140 | -- |
| 08... | 0.47 | 1.4 | 0.02 | <0.01 | <0.01 | -- | 4100 | -- | 1400 | -- |
| 08... | 1.00 | 1.7 | 0.03 | 0.01 | 0.01 | -- | 14000 | -- | 1300 | 8.4 |
| DEC | | | | | | | | | | |
| 12... | 0.17 | 0.7 | <0.01 | <0.01 | <0.01 | -- | 600 | -- | 280 | -- |
| 12... | 0.19 | 0.5 | <0.01 | <0.01 | <0.01 | -- | 610 | -- | 260 | 6.0 |
| 12... | 0.19 | 1.1 | <0.01 | <0.01 | <0.01 | -- | 520 | -- | 280 | -- |
| 12... | 0.17 | 0.5 | <0.01 | <0.01 | <0.01 | -- | 580 | -- | 270 | -- |
| 12... | 0.19 | 0.5 | <0.01 | <0.01 | <0.01 | -- | 500 | -- | 250 | 6.0 |
| MAR | | | | | | | | | | |
| 01... | -- | 0.7 | 0.018 | 0.012 | -- | -- | 300 | -- | 55 | -- |
| 01... | -- | 0.9 | 0.02 | 0.003 | -- | 510 | 280 | 90 | 55 | 6.1 |
| 01... | -- | 0.5 | 0.015 | 0.01 | -- | -- | 280 | -- | 55 | -- |
| 01... | -- | 0.5 | 0.02 | 0.011 | -- | -- | 310 | -- | 62 | -- |
| 01... | -- | 0.4 | 0.017 | 0.006 | -- | 550 | 320 | 100 | 63 | 5.9 |
| APR | | | | | | | | | | |
| 23... | 0.01 | 0.9 | 0.01 | 0.01 | <0.001 | -- | 31 | -- | 14 | -- |
| 23... | <0.01 | 0.5 | 0.021 | 0.012 | 0.001 | 330 | 35 | 20 | 3 | 6.8 |
| 23... | <0.01 | 0.8 | 0.01 | 0.01 | <0.001 | -- | 45 | -- | 2 | -- |
| 23... | 0.01 | 0.9 | 0.01 | 0.01 | <0.001 | -- | 46 | -- | 15 | -- |
| 23... | 0.03 | 0.4 | 0.016 | 0.01 | <0.001 | 430 | 59 | 90 | 22 | 6.2 |
| MAY | | | | | | | | | | |
| 14... | <0.01 | 0.4 | 0.011 | 0.007 | 0.01 | -- | 35 | -- | 75 | -- |
| 14... | 0.03 | 0.4 | 0.011 | 0.01 | 0.008 | 100 | 29 | 10 | 13 | 6.5 |
| 14... | 0.04 | 0.5 | 0.018 | 0.008 | 0.01 | -- | 24 | -- | 17 | -- |
| 14... | 0.15 | 0.6 | 0.026 | 0.024 | 0.024 | -- | 37 | -- | 170 | -- |
| 14... | 0.20 | 0.4 | 0.02 | 0.011 | 0.014 | 550 | 64 | 460 | 470 | 6.1 |
| JUN | | | | | | | | | | |
| 20... | 0.05 | 0.5 | 0.011 | 0.005 | <0.001 | -- | 74 | -- | 87 | -- |
| 20... | 0.06 | 0.4 | 0.015 | 0.012 | 0.009 | 80 | 22 | 10 | 12 | 6.6 |
| 20... | 0.07 | 0.7 | 0.013 | 0.005 | <0.001 | -- | 20 | -- | 73 | -- |
| 20... | 0.24 | 0.5 | 0.015 | 0.007 | <0.001 | -- | 120 | -- | 610 | -- |
| 20... | 0.36 | 0.5 | 0.032 | 0.014 | 0.013 | 2100 | 1300 | 800 | 770 | 7.3 |
| JUL | | | | | | | | | | |
| 17... | 0.05 | 0.4 | 0.02 | 0.012 | 0.003 | -- | 35 | -- | 44 | -- |
| 17... | 0.03 | 0.5 | 0.025 | 0.016 | 0.002 | 70 | 39 | 30 | 18 | 7.3 |
| 17... | 0.05 | 0.5 | 0.02 | 0.016 | 0.002 | -- | 12 | -- | 42 | -- |
| 17... | 0.34 | 0.6 | 0.021 | 0.013 | 0.004 | -- | 2600 | -- | 840 | -- |
| 17... | 0.50 | 0.6 | 0.029 | 0.024 | 0.004 | 3900 | 3400 | 900 | 890 | 9.5 |
| AUG | | | | | | | | | | |
| 12... | <0.01 | 0.5 | 0.03 | 0.029 | 0.013 | -- | 32 | -- | 28 | -- |
| 12... | <0.01 | 0.4 | 0.019 | 0.023 | 0.006 | 520 | 33 | 30 | 9 | 7.2 |
| 12... | <0.01 | 0.5 | 0.02 | 0.009 | 0.004 | -- | 26 | -- | 160 | -- |
| 12... | 0.38 | 0.7 | 0.03 | 0.009 | <0.001 | -- | 3100 | -- | 980 | -- |
| 12... | 0.65 | 1.2 | 0.025 | 0.01 | 0.004 | 7400 | 7100 | 1000 | 1000 | 7.6 |
| SEP | | | | | | | | | | |
| 04... | <0.01 | 0.9 | 0.009 | 0.009 | 0.001 | -- | 52 | -- | 28 | -- |
| 04... | 0.05 | 0.3 | 0.02 | 0.008 | 0.003 | 140 | 38 | 20 | 3 | 7.4 |
| 04... | 0.11 | 0.9 | 0.011 | 0.007 | 0.009 | -- | 32 | -- | 3 | -- |
| 04... | 0.35 | 0.5 | 0.021 | 0.007 | 0.009 | -- | 1600 | -- | 1300 | -- |
| 04... | 0.91 | 1.2 | 0.033 | 0.028 | 0.027 | 9500 | 9500 | 1100 | 1000 | 7.6 |

## 0204275440 LITTLE CREEK RESERVOIR (NORTHEAST) NEAR NORGE, VA

LOCATION.--Lat 37°21'42", long 76°48'42", James City County, Hydrologic Unit 02080206, 0.9 mi northeast of city of Newport News pumping station, 1.3 mi south of Toano, and 2.4 mi west of Norge.

PERIOD OF RECORD.--August 1983 to December 1984 (discontinued).

### WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

| DATE | TIME | SAMPLING DEPTH (FEET) | SPECIFIC CONDUCTANCE (US/CM) | PH (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 11:40 | 3.00 | 105 | 7.1 | 19.0 | 759 | 9.5 | 103 | <0.10 | 0.03 | <0.01 | <0.01 |
| 18... | 11:45 | 10.0 | 105 | 7.1 | 18.5 | 759 | 9.0 | 96 | <0.10 | 0.02 | 0.01 | 0.01 |
| 18... | 11:50 | 18.0 | 110 | 7.0 | 18.5 | 759 | 7.7 | 83 | <0.10 | <0.01 | <0.01 | <0.01 |
| NOV | | | | | | | | | | | | |
| 08... | 11:55 | 3.00 | 102 | 7.0 | 16.5 | 766 | 7.0 | 71 | <0.10 | <0.01 | <0.01 | <0.01 |
| 08... | 12:00 | 10.0 | 106 | 7.0 | 16.5 | 766 | 6.9 | 70 | <0.10 | <0.01 | <0.01 | <0.01 |
| 08... | 12:05 | 18.0 | 105 | 7.0 | 16.0 | 766 | 6.9 | 70 | <0.10 | <0.01 | <0.01 | <0.01 |
| DEC | | | | | | | | | | | | |
| 12... | 11:45 | 3.00 | 105 | 6.6 | 9.0 | 755 | 9.9 | 86 | <0.10 | 0.15 | <0.01 | <0.01 |
| 12... | 11:50 | 10.0 | 105 | 6.3 | 8.5 | 755 | 9.6 | 83 | <0.10 | 0.16 | <0.01 | <0.01 |
| 12... | 11:55 | 18.0 | 105 | 6.6 | 8.5 | 755 | 9.5 | 82 | <0.10 | 0.19 | <0.01 | <0.01 |

## 0204275470 LITTLE CREEK RESERVOIR (SOUTH CENTRAL) NEAR NORGE, VA

LOCATION.--Lat 37°21'17", long 76°50'27", James City County, Hydrologic Unit 02080206, 0.3 mi north of Little Creek Reservoir dam, 0.9 mi southwest of city of Newport News pumping station, 2.7 mi southwest of Toano, and 4.0 mi west of Norge.

PERIOD OF RECORD.--Water years 1983 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | SAMPLING DEPTH (FEET) | SPECIFIC CONDUCTANCE (US/CM) | PH (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 18... | 10:30 | 3.00 | 100 | 6.9 | 19.5 | 759 | 9.4 |
| 18... | 10:35 | 10.0 | 105 | 7.1 | 19.5 | 759 | 9.3 |
| 18... | 10:40 | 20.0 | 110 | 6.9 | 18.0 | 759 | 5.4 |
| 18... | 10:45 | 35.0 | 145 | 6.7 | 12.0 | 759 | 0 |
| 18... | 10:50 | 45.5 | 160 | 6.7 | 12.0 | 759 | 0 |
| NOV | | | | | | | |
| 08... | 10:25 | 3.00 | 102 | 6.9 | 16.5 | 766 | 7.1 |
| 08... | 10:30 | 10.0 | 112 | 6.9 | 16.5 | 766 | 7.0 |
| 08... | 10:35 | 20.0 | 103 | 6.9 | 16.5 | 766 | 6.9 |
| 08... | 10:45 | 35.0 | 119 | 6.8 | 12.5 | 766 | 0 |
| 08... | 10:50 | 50.0 | 169 | 6.6 | 11.5 | 766 | 0 |
| DEC | | | | | | | |
| 12... | 10:30 | 3.00 | 110 | 6.7 | 9.0 | 755 | 8.7 |
| 12... | 10:35 | 10.0 | 110 | 6.7 | 9.0 | 755 | 8.7 |
| 12... | 10:40 | 20.0 | 110 | 6.6 | 9.0 | 755 | 8.6 |
| 12... | 10:45 | 35.0 | 110 | 6.4 | 8.5 | 755 | 8.6 |
| 12... | 10:50 | 50.0 | 110 | 6.7 | 8.5 | 755 | 8.6 |
| MAR | | | | | | | |
| 01... | 11:30 | 3.00 | 100 | 7.0 | 6.0 | 761 | 13.4 |
| 01... | 11:45 | 10.0 | 105 | 7.1 | 6.0 | 761 | 13.4 |
| 01... | 12:00 | 20.0 | 105 | 7.0 | 5.5 | 761 | 13.2 |
| 01... | 12:15 | 35.0 | 105 | 7.0 | 5.0 | 761 | 12.8 |
| 01... | 12:30 | 50.0 | 105 | 7.0 | 5.0 | 761 | 12.8 |
| APR | | | | | | | |
| 23... | 12:30 | 3.00 | 110 | 6.4 | 23.5 | 757 | 9.3 |
| 23... | 12:35 | 10.0 | 103 | 6.6 | 18.0 | 757 | 10.1 |
| 23... | 12:40 | 20.0 | 108 | 6.6 | 12.5 | 757 | 9.5 |
| 23... | 12:45 | 35.0 | 140 | 6.5 | 10.0 | 757 | 8.2 |
| 23... | 12:50 | 50.0 | 138 | 6.4 | 9.5 | 757 | 7.7 |
| MAY | | | | | | | |
| 14... | 13:20 | 3.00 | 120 | 6.4 | 27.0 | 756 | 8.3 |
| 14... | 13:25 | 10.0 | 120 | 6.6 | 27.0 | 756 | 8.3 |
| 14... | 13:30 | 20.0 | 121 | 6.6 | 14.0 | 756 | 8.7 |
| 14... | 13:35 | 35.0 | 120 | 6.5 | 10.0 | 756 | 5.4 |
| 14... | 13:40 | 50.0 | 120 | 6.5 | 10.0 | 756 | 4.1 |
| JUN | | | | | | | |
| 20... | 13:00 | 3.00 | 110 | 6.7 | 27.5 | 755 | 7.8 |
| 20... | 13:15 | 10.0 | 110 | 7.0 | 27.0 | 755 | 7.6 |
| 20... | 13:30 | 20.0 | 113 | 6.5 | 16.0 | 755 | 9.3 |
| 20... | 13:45 | 35.0 | 120 | 6.6 | 10.0 | 755 | 2.5 |
| 20... | 14:00 | 50.0 | 142 | 6.5 | 8.5 | 755 | 0 |
| JUL | | | | | | | |
| 17... | 13:15 | 3.00 | 107 | 7.0 | 30.0 | 758 | 7.7 |
| 17... | 13:30 | 10.0 | 112 | 7.1 | 30.0 | 758 | 8.0 |
| 17... | 13:45 | 20.0 | 115 | 7.1 | 19.0 | 758 | 10.3 |
| 17... | 14:00 | 35.0 | 120 | 6.8 | 9.5 | 758 | 0.5 |
| 17... | 14:45 | 50.0 | 138 | 6.7 | 8.5 | 758 | 0 |
| AUG | | | | | | | |
| 12... | 13:15 | 3.00 | 110 | 7.2 | 29.5 | 759 | 11.5 |
| 12... | 13:30 | 10.0 | 110 | 6.9 | 29.0 | 759 | 11.3 |
| 12... | 13:45 | 20.0 | 112 | 6.6 | 23.0 | 759 | 8.8 |
| 12... | 14:00 | 35.0 | 130 | 6.6 | 9.5 | 759 | 0 |
| 12... | 14:15 | 50.0 | 140 | 6.5 | 9.0 | 759 | 0 |
| SEP | | | | | | | |
| 04... | 13:00 | 3.00 | 98 | 6.7 | 28.5 | 759 | 7.6 |
| 04... | 13:15 | 10.0 | 99 | 6.5 | 28.0 | 759 | 7.6 |
| 04... | 13:30 | 20.0 | 102 | 6.7 | 25.0 | 759 | 5.0 |
| 04... | 13:45 | 35.0 | 120 | 6.5 | 10.0 | 759 | 0 |
| 04... | 14:00 | 50.0 | 134 | 6.5 | 9.0 | 759 | 0 |

## 0204275470 LITTLE CREEK RESERVOIR (SOUTH CENTRAL) NEAR NORGE, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 18... | 103 | <0.10 | <0.01 | -- | <0.01 | <0.01 |
| 18... | 102 | <0.10 | 0.04 | -- | <0.01 | <0.01 |
| 18... | 57 | <0.10 | 0.08 | -- | <0.01 | <0.01 |
| 18... | 0 | <0.10 | 0.66 | -- | <0.01 | <0.01 |
| 18... | 0 | <0.10 | 0.78 | -- | <0.01 | <0.01 |
| NOV | | | | | | |
| 08... | 72 | <0.10 | 0.04 | -- | <0.01 | <0.01 |
| 08... | 71 | <0.10 | 0.26 | -- | <0.01 | <0.01 |
| 08... | 70 | <0.10 | 0.04 | -- | <0.01 | <0.01 |
| 08... | 0 | <0.10 | 0.29 | -- | <0.01 | <0.01 |
| 08... | 0 | <0.10 | 0.87 | -- | 0.02 | <0.01 |
| DEC | | | | | | |
| 12... | 76 | <0.10 | 0.20 | -- | <0.01 | <0.01 |
| 12... | 76 | <0.10 | 0.23 | -- | <0.01 | <0.01 |
| 12... | 75 | <0.10 | 0.22 | -- | <0.01 | <0.01 |
| 12... | 74 | <0.10 | 0.16 | -- | <0.01 | <0.01 |
| 12... | 74 | <0.10 | 0.16 | -- | <0.01 | <0.01 |
| MAR | | | | | | |
| 01... | 108 | -- | -- | 1.0 | 0.017 | -- |
| 01... | 108 | -- | -- | 1.2 | 0.022 | -- |
| 01... | 105 | -- | -- | 0.7 | 0.014 | -- |
| 01... | 100 | -- | -- | 0.9 | 0.014 | -- |
| 01... | 100 | -- | -- | 0.5 | 0.017 | -- |
| APR | | | | | | |
| 23... | 110 | 0.10 | <0.01 | 0.9 | 0.01 | <0.001 |
| 23... | 107 | 0.056 | <0.01 | 0.6 | 0.01 | 0.001 |
| 23... | 90 | 0.151 | <0.01 | 0.8 | 0.01 | 0.002 |
| 23... | 73 | 0.131 | 0.04 | 0.5 | 0.01 | <0.001 |
| 23... | 68 | 0.138 | 0.08 | 0.6 | 0.053 | 0.048 |
| MAY | | | | | | |
| 14... | 105 | 0.065 | <0.01 | 0.2 | 0.027 | 0.024 |
| 14... | 105 | 0.063 | 0.01 | 0.4 | 0.03 | 0.007 |
| 14... | 85 | 0.099 | 0.01 | 0.5 | 0.016 | 0.015 |
| 14... | 48 | 0.119 | 0.08 | 0.4 | 0.037 | 0.024 |
| 14... | 37 | 0.084 | 0.15 | 0.7 | 0.02 | 0.008 |
| JUN | | | | | | |
| 20... | 100 | <0.01 | 0.05 | 0.6 | 0.015 | <0.001 |
| 20... | 96 | 0.029 | 0.06 | 0.3 | 0.012 | <0.001 |
| 20... | 95 | 0.039 | 0.05 | 0.5 | 0.021 | <0.001 |
| 20... | 22 | 0.05 | 0.22 | 0.4 | 0.012 | <0.001 |
| 20... | 0 | 0.041 | 0.30 | 0.6 | 0.012 | <0.001 |
| JUL | | | | | | |
| 17... | 103 | 0.052 | <0.01 | 0.3 | 0.019 | 0.005 |
| 17... | 107 | 0.023 | 0.01 | 0.3 | 0.018 | <0.001 |
| 17... | 112 | <0.01 | 0.22 | 0.4 | 0.02 | <0.001 |
| 17... | 4 | 0.059 | 0.30 | 0.5 | 0.022 | 0.005 |
| 17... | 0 | 0.03 | 0.45 | 0.7 | 0.025 | 0.004 |
| AUG | | | | | | |
| 12... | 152 | 0.027 | <0.01 | 0.3 | 0.011 | 0.004 |
| 12... | 148 | 0.03 | <0.01 | 0.3 | 0.024 | <0.001 |
| 12... | 103 | 0.055 | 0.03 | 0.5 | 0.023 | <0.001 |
| 12... | 0 | <0.01 | 0.31 | 0.6 | 0.025 | 0.002 |
| 12... | 0 | 0.185 | 0.55 | 0.8 | 0.019 | 0.003 |
| SEP | | | | | | |
| 04... | 98 | 0.055 | <0.01 | 0.6 | 0.013 | 0.004 |
| 04... | 98 | 0.051 | 0.02 | 0.5 | 0.01 | 0.005 |
| 04... | 61 | <0.01 | <0.01 | 0.5 | 0.011 | 0.008 |
| 04... | 0 | <0.01 | 0.33 | 1.0 | 0.015 | 0.006 |
| 04... | 0 | 0.078 | 0.65 | 1.2 | 0.024 | 0.023 |

## 0204275490 LITTLE CREEK RESERVOIR (WEST) NEAR NORGE, VA

LOCATION.--Lat 37°21'21", long 76°51'02", James City County, Hydrologic Unit 02080206, in western arm of Little Creek Reservoir, 0.6 mi northwest of reservoir dam, 1.4 mi west of city of Newport News pumping station, 3.0 mi south of Toano, and 4.5 mi west of Norge.

PERIOD OF RECORD.--July 1983 to December 1984 (discontinued).

### WATER QUALITY DATA, OCTOBER TO DECEMBER 1984

| DATE | TIME | SAMPLING DEPTH (FEET) | SPECIFIC CONDUCTANCE (US/CM) | PH (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 18... | 11:00 | 3.00 | 100 | 7.0 | 20.0 | 759 | 9.4 | 104 | <0.10 | 0.08 | <0.01 | <0.01 |
| 18... | 11:10 | 10.0 | 105 | 6.9 | 19.0 | 759 | 9.1 | 99 | <0.10 | <0.01 | <0.01 | <0.01 |
| 18... | 11:20 | 20.0 | 105 | 6.6 | 18.5 | 759 | 6.0 | 64 | <0.10 | 0.08 | <0.01 | <0.01 |
| NOV | | | | | | | | | | | | |
| 08... | 11:15 | 3.00 | 105 | 6.9 | 17.5 | 766 | 6.6 | 69 | <0.10 | <0.01 | <0.01 | <0.01 |
| 08... | 11:20 | 10.0 | 100 | 6.9 | 17.0 | 766 | 6.4 | 66 | <0.10 | 0.04 | 0.02 | <0.01 |
| 08... | 11:25 | 20.0 | 108 | 6.9 | 16.5 | 766 | 6.6 | 67 | <0.10 | 0.26 | <0.01 | <0.01 |
| DEC | | | | | | | | | | | | |
| 12... | 11:20 | 10.0 | 110 | 6.5 | 8.5 | 755 | 8.5 | 73 | <0.10 | 0.25 | 0.01 | <0.01 |
| 12... | 11:25 | 20.0 | 110 | 6.6 | 8.5 | 755 | 8.4 | 72 | <0.10 | 0.21 | <0.01 | <0.01 |

## 02043500 CYPRESS SWAMP AT CYPRESS CHAPEL, VA

LOCATION (REVISED).--Lat 36°37'24", long 76°36'07", Suffolk City, Hydrologic Unit 03010205, near center of span on downstream side of bridge on State Highway 32, 0.5 mi downstream from Dragon Swamp, 0.8 mi northwest of Cypress Chapel, and 6.5 mi south of downtown Suffolk.

DRAINAGE AREA.--23.8 mi².

PERIOD OF RECORD.--October 1953 to September 1971, March 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 28.65 ft above National Geodetic Vertical Datum of 1929. October 1953 to September 1971, recording gage on right bank 30 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 14-16, 20-30. Records good except those for periods with ice effect, Jan. 14-16, 20-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--25 years, 27.3 ft³/s, 15.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s, Aug. 11, 1967, gage height, 6.85 ft; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 200 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 1130 | 257 | 4.47 | July 11 | 1530 | 347 | 4.79 |
| Feb. 13 | 1100 | 201 | 4.24 | Sept. 27 | 2230 | *551 | *5.36 |

No flow many days during year.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .21 | .63 | 136 | 47 | 20 | .00 | .00 | .00 | .08 | .00 |
| 2 | .11 | .00 | .20 | .57 | 247 | 52 | 16 | .00 | .00 | .00 | .10 | .00 |
| 3 | .38 | .00 | 3.0 | 4.6 | 218 | 52 | 14 | .03 | .00 | .00 | .06 | .00 |
| 4 | .23 | .00 | 7.9 | 44 | 134 | 42 | 11 | .67 | .00 | .00 | .02 | .00 |
| 5 | .04 | .00 | 7.6 | 77 | 83 | 36 | 9.6 | .92 | 13 | .00 | .00 | .00 |
| 6 | .00 | .00 | 20 | 51 | 91 | 31 | 8.4 | .27 | 95 | .00 | .00 | .00 |
| 7 | .00 | .00 | 18 | 27 | 101 | 25 | 6.4 | .06 | 63 | .16 | .00 | .00 |
| 8 | .00 | .00 | 15 | 18 | 76 | 22 | 5.6 | .03 | 10 | .34 | .00 | .00 |
| 9 | .00 | .00 | 12 | 12 | 60 | 21 | 4.6 | .01 | 1.6 | .07 | .00 | .00 |
| 10 | .00 | .00 | 8.8 | 9.0 | 51 | 20 | 3.8 | .00 | .26 | 1.8 | .00 | .00 |
| 11 | .00 | .00 | 7.1 | 12 | 45 | 18 | 3.2 | .00 | .05 | 238 | .00 | .00 |
| 12 | .00 | .00 | 5.3 | 14 | 89 | 17 | 2.9 | .00 | .59 | 167 | .00 | .00 |
| 13 | .00 | .00 | 4.4 | 13 | 189 | 16 | 2.7 | .00 | 9.4 | 27 | .00 | .00 |
| 14 | .00 | .00 | 3.7 | 9.4 | 121 | 14 | 2.5 | .00 | 8.6 | 4.1 | .00 | .00 |
| 15 | .00 | .00 | 3.1 | 7.8 | 74 | 12 | 3.0 | .00 | .82 | .73 | .00 | .00 |
| 16 | .00 | .00 | 2.5 | 6.2 | 57 | 11 | 4.0 | .00 | .44 | .21 | .00 | .00 |
| 17 | .00 | .00 | 2.1 | 7.3 | 48 | 10 | 5.9 | .00 | .99 | 1.6 | .00 | .00 |
| 18 | .00 | .00 | 1.9 | 21 | 41 | 9.9 | 6.7 | .00 | .34 | 3.6 | .00 | .00 |
| 19 | .00 | .00 | 1.8 | 26 | 37 | 9.0 | 4.1 | .00 | .24 | .97 | .00 | .00 |
| 20 | .00 | .00 | 1.7 | 20 | 34 | 7.7 | 2.4 | .00 | .09 | .15 | .00 | .00 |
| 21 | .00 | .00 | 1.6 | 16 | 32 | 6.9 | 1.3 | .00 | .03 | .04 | .00 | .00 |
| 22 | .00 | .00 | 1.5 | 14 | 28 | 17 | .70 | .00 | .01 | .02 | .00 | .00 |
| 23 | .00 | .00 | 1.3 | 12 | 27 | 79 | .35 | .00 | .00 | .04 | .00 | .00 |
| 24 | .00 | .00 | 1.3 | 11 | 26 | 79 | .15 | .00 | .00 | .04 | .00 | .00 |
| 25 | .00 | .00 | 1.2 | 10 | 24 | 92 | .07 | .00 | .00 | .10 | .00 | .00 |
| 26 | .00 | .00 | .97 | 18 | 53 | 79 | .05 | .00 | .00 | .36 | .00 | .00 |
| 27 | .00 | .00 | .82 | 15 | 89 | 52 | .03 | .00 | .00 | .24 | .00 | 229 |
| 28 | .00 | .00 | .77 | 9.0 | 66 | 41 | .02 | .00 | .00 | .19 | .00 | 384 |
| 29 | .00 | .00 | .74 | 8.5 | --- | 34 | .01 | .00 | .00 | .16 | .00 | 129 |
| 30 | .00 | .00 | .72 | 8.2 | --- | 29 | .00 | .00 | .00 | .46 | .00 | 38 |
| 31 | .00 | --- | .66 | 18 | --- | 24 | --- | .00 | --- | .33 | .00 | --- |
| TOTAL | .76 | .00 | 137.89 | 520.20 | 2277 | 1005.5 | 139.48 | 1.99 | 204.46 | 447.71 | .26 | 780.00 |
| MEAN | .02 | .00 | 4.45 | 16.8 | 81.3 | 32.4 | 4.65 | .06 | 6.82 | 14.4 | .01 | 26.0 |
| MAX | .38 | .00 | 20 | 77 | 247 | 92 | 20 | .92 | 95 | 238 | .10 | 384 |
| MIN | .00 | .00 | .20 | .57 | 24 | 6.9 | .00 | .00 | .00 | .00 | .00 | .00 |
| CFSM | .00 | .00 | .19 | .71 | 3.42 | 1.36 | .20 | .00 | .29 | .61 | .00 | 1.09 |
| IN. | .00 | .00 | .22 | .81 | 3.56 | 1.57 | .22 | .00 | .32 | .70 | .00 | 1.22 |

CAL YR 1984 TOTAL 8357.50 MEAN 22.8 MAX 394 MIN .00 CFSM .96 IN. 13.06
WTR YR 1985 TOTAL 5515.25 MEAN 15.1 MAX 384 MIN .00 CFSM .63 IN. 8.62

## 02043600 LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA

LOCATION.--Lat 36°35'42", long 76°26'23", Chesapeake City, Hydrologic Unit 03010205, on right bank in outlet canal, 200 ft upstream from dam and gates, 0.5 mi downstream from Lake Drummond, 3.1 mi north of North Carolina State line, and 20 mi southwest of Norfolk.

PERIOD OF RECORD.--May 1926 to current year. Prior to October 1973, published as Lake Drummond in Dismal Swamp.

REVISED RECORDS.--WSP 1032: 1934-43.

GAGE.--Nonrecording gage. Datum of gage is 12.16 ft above National Geodetic Vertical Datum of 1929. Aug. 22, 1978, to Oct. 1, 1981, water-stage recorder at same site and datum.

REMARKS.--Mean daily gage heights are shown in table below.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.68 ft, Sept. 17, 1960; minimum, -0.67 ft, Nov. 3, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.20 ft, Mar. 29, Apr. 17, 20; minimum, 3.30 ft, Sept. 22.

GAGE HEIGHT (FEET), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.79 | 3.80 | 3.70 | 4.35 | 5.06 | 5.00 | 5.10 | 5.09 | 4.34 | 3.68 | 3.98 | 3.68 |
| 2 | 4.80 | 3.78 | 3.70 | 4.38 | 5.00 | 5.00 | 5.03 | 5.08 | 4.30 | 3.65 | 3.96 | 3.68 |
| 3 | 4.78 | 3.75 | 3.82 | 4.45 | 5.08 | 5.00 | 5.06 | 5.17 | 4.22 | 3.58 | 3.96 | 3.66 |
| 4 | 4.70 | 3.68 | 3.82 | 4.57 | 5.00 | 5.00 | 5.07 | 5.08 | 4.20 | 3.60 | 3.94 | 3.62 |
| 5 | 4.68 | 3.70 | 3.85 | 4.64 | 4.99 | 5.00 | 5.18 | 5.06 | 4.26 | 3.52 | 3.90 | 3.60 |
| 6 | 4.68 | 3.66 | 3.94 | 4.68 | 5.00 | 5.00 | 5.18 | 5.06 | 4.38 | 3.56 | 3.90 | 3.60 |
| 7 | 4.60 | 3.62 | 3.96 | 4.74 | 4.98 | 5.00 | 5.09 | 5.06 | 4.40 | 3.62 | 3.90 | 3.58 |
| 8 | 4.60 | 3.60 | 3.96 | 4.82 | 4.98 | 5.00 | 5.16 | 5.05 | 4.40 | 3.62 | 3.90 | 3.56 |
| 9 | 4.52 | 3.60 | 3.97 | 4.86 | 4.98 | 5.00 | 5.16 | 5.00 | 4.38 | 3.60 | 3.90 | 3.54 |
| 10 | 4.52 | 3.60 | 3.99 | 4.88 | 4.94 | 5.00 | 5.18 | 4.94 | 4.38 | 3.58 | 3.90 | 3.53 |
| 11 | 4.49 | 3.59 | 4.04 | 4.94 | 4.91 | 5.06 | 5.18 | 4.94 | 4.30 | 3.72 | 3.84 | 3.52 |
| 12 | 4.48 | 3.65 | 4.06 | 5.06 | 5.00 | 5.08 | 5.18 | 4.92 | 4.32 | 3.72 | 3.80 | 3.50 |
| 13 | 4.40 | 3.60 | 4.06 | 5.06 | 5.02 | 5.10 | 5.14 | 4.94 | 4.38 | 3.76 | 3.80 | 3.48 |
| 14 | 4.37 | 3.59 | 4.10 | 5.08 | 5.00 | 5.14 | 5.18 | 4.92 | 4.37 | 3.80 | 3.80 | 3.46 |
| 15 | 4.36 | 3.59 | 4.11 | 5.10 | 5.00 | 5.14 | 5.18 | 4.90 | 4.25 | 3.82 | 3.80 | 3.45 |
| 16 | 4.29 | 3.58 | 4.18 | 5.12 | 5.00 | 5.14 | 5.18 | 4.86 | 4.24 | 3.84 | 3.80 | 3.45 |
| 17 | 4.24 | 3.58 | 4.18 | 5.14 | 4.98 | 5.15 | 5.20 | 4.82 | 4.24 | 3.80 | 3.80 | 3.38 |
| 18 | 4.22 | 3.56 | 4.18 | 5.14 | 5.00 | 5.09 | 5.18 | 4.81 | 4.20 | 3.87 | 3.78 | 3.36 |
| 19 | 4.21 | 3.58 | 4.19 | 5.14 | 4.98 | 5.00 | 5.19 | 4.94 | 4.20 | 3.90 | 3.80 | 3.35 |
| 20 | 4.13 | 3.61 | 4.20 | 5.14 | 4.99 | 5.08 | 5.20 | 4.64 | 4.12 | 3.90 | 3.82 | 3.34 |
| 21 | 4.16 | 3.63 | 4.22 | 5.15 | 4.99 | 5.09 | 5.17 | 4.62 | 4.10 | 3.89 | 3.82 | 3.36 |
| 22 | 4.12 | 3.62 | 4.25 | 5.10 | 4.98 | 5.05 | 5.18 | 4.61 | 4.03 | 3.86 | 3.79 | 3.30 |
| 23 | 4.08 | 3.58 | 4.25 | 5.00 | 4.98 | 5.14 | 5.10 | 4.60 | 3.98 | 3.90 | 3.79 | 3.32 |
| 24 | 4.02 | 3.59 | 4.25 | 4.94 | 4.99 | 5.00 | 5.18 | 4.60 | 3.95 | 3.90 | 3.77 | 3.40 |
| 25 | 4.01 | 3.59 | 4.30 | 4.96 | 4.98 | 5.00 | 5.14 | 4.60 | 3.90 | 3.90 | 3.77 | 3.40 |
| 26 | 3.98 | 3.60 | 4.30 | 4.96 | 5.05 | 5.02 | 5.13 | 4.60 | 3.87 | 3.94 | 3.78 | 3.40 |
| 27 | 3.90 | 3.60 | 4.30 | 4.94 | 4.95 | 5.09 | 5.16 | 4.52 | 3.80 | 3.94 | 3.76 | 4.10 |
| 28 | 3.89 | 3.60 | 4.30 | 4.96 | 5.00 | 5.13 | 5.10 | 4.50 | 3.77 | 3.96 | 3.76 | 3.90 |
| 29 | 3.88 | 3.70 | 4.35 | 4.98 | --- | 5.20 | 5.09 | 4.48 | 3.74 | 3.98 | 3.74 | 3.92 |
| 30 | 3.82 | 3.68 | 4.35 | 4.96 | --- | 5.10 | 5.10 | 4.39 | 3.70 | 3.96 | 3.74 | 3.92 |
| 31 | 3.80 | --- | 4.35 | 4.96 | --- | 5.10 | --- | 4.38 | --- | 3.98 | 3.74 | --- |
| MEAN | 4.31 | 3.63 | 4.10 | 4.91 | 4.99 | 5.06 | 5.15 | 4.81 | 4.16 | 3.79 | 3.83 | 3.55 |
| MAX | 4.80 | 3.80 | 4.35 | 5.15 | 5.08 | 5.20 | 5.20 | 5.17 | 4.40 | 3.98 | 3.98 | 4.10 |
| MIN | 3.80 | 3.56 | 3.70 | 4.35 | 4.91 | 5.00 | 5.03 | 4.38 | 3.70 | 3.52 | 3.74 | 3.30 |

WTR YR 1985 MEAN 4.35 MAX 5.20 MIN 3.30

## 02044000 NOTTOWAY RIVER NEAR BURKEVILLE, VA

**LOCATION.**--Lat 37°04'40", long 78°11'52", Lunenburg County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 723, 4.0 mi upstream from Modest Creek, 5.6 mi north of Victoria, and 7.5 mi south of Burkeville.

**DRAINAGE AREA.**--38.7 mi$^2$.

**PERIOD OF RECORD.**--September 1946 to current year.

**REVISED RECORDS.**--WSP 1383: 1946-47, 1949. WSP 1433: 1948. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 354.58 ft above National Geodetic Vertical Datum of 1929. Prior to July 4, 1951, nonrecording gage at same site and datum. Prior to Oct. 29, 1981, on left bank at downstream side of bridge at same datum.

**REMARKS.**--Estimated daily discharges: Oct. 8-22, Jan. 11, 12, 17, 21-30, Feb. 6, 7, 9-11, May 3, 13, 18, June 1, 2, 6-8, 12-14, 29, July 1, 13, 26, 29, and Aug. 2. Records good except those for periods of doubtful gage-height record, Oct. 8-22, May 3, 13, 18, June 1, 2, 6-8, 12-14, 29, July 1, 13, 26, 29, and Aug. 2, and periods with ice effect, Jan. 11, 12, 17, 21-30 and Feb. 6, 7, 9-11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--39 years, 38.6 ft$^3$/s, 13.54 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 13,400 ft$^3$/s, Oct. 23, 1971, gage height, 22.33 ft, from rating curve extended above 3,200 ft$^3$/s on basis of slope-area measurement of peak flow; no flow Aug. 29 to Oct. 14, 1954, Sept. 3-5, 12-15, 1963.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Maximum stage since at least 1930, 27.4 ft in August 1940, from U.S. Army Corps of Engineers floodmark.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,200 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 1700 | *756 | *10.38 | No peak equal to or greater than base discharge. | | | |

Minimum discharge, 0.54 ft$^3$/s, Aug. 16.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 6.3 | 20 | 15 | 474 | 26 | 20 | 7.2 | 5.2 | 1.5 | 3.0 | 5.3 |
| 2 | 16 | 5.7 | 15 | 16 | 374 | 24 | 18 | 7.0 | 4.7 | 2.8 | 10 | 3.8 |
| 3 | 8.2 | 5.4 | 22 | 332 | 131 | 21 | 16 | 20 | 4.3 | 1.8 | 5.3 | 3.9 |
| 4 | 5.9 | 5.2 | 25 | 468 | 72 | 20 | 15 | 12 | 3.8 | 1.5 | 2.8 | 2.3 |
| 5 | 5.0 | 8.0 | 18 | 218 | 55 | 21 | 15 | 8.8 | 4.4 | 1.7 | 1.8 | 1.9 |
| 6 | 4.3 | 10 | 113 | 91 | 51 | 19 | 14 | 7.7 | 17 | 1.5 | 1.5 | 1.7 |
| 7 | 4.0 | 7.8 | 46 | 61 | 45 | 16 | 14 | 7.0 | 14 | 1.6 | 1.4 | 1.6 |
| 8 | 3.9 | 6.5 | 28 | 46 | 40 | 17 | 13 | 6.2 | 9.0 | 1.4 | 1.4 | 1.4 |
| 9 | 3.8 | 5.7 | 21 | 34 | 30 | 18 | 13 | 5.6 | 7.0 | 1.2 | 1.8 | 1.3 |
| 10 | 3.7 | 5.5 | 18 | 28 | 28 | 17 | 12 | 5.5 | 5.6 | 1.4 | 1.8 | 1.2 |
| 11 | 3.7 | 6.7 | 18 | 26 | 25 | 16 | 12 | 5.6 | 4.4 | 3.9 | 1.4 | 1.2 |
| 12 | 3.6 | 12 | 16 | 24 | 305 | 17 | 13 | 5.6 | 4.5 | 8.0 | 1.0 | 1.1 |
| 13 | 3.5 | 8.8 | 14 | 23 | 122 | 16 | 13 | 7.0 | 6.0 | 20 | .90 | 1.0 |
| 14 | 3.4 | 6.9 | 13 | 21 | 68 | 16 | 13 | 6.2 | 4.5 | 5.3 | .70 | .95 |
| 15 | 3.4 | 6.3 | 12 | 20 | 48 | 15 | 14 | 5.0 | 3.1 | 3.0 | .66 | .95 |
| 16 | 3.5 | 6.1 | 12 | 18 | 39 | 15 | 15 | 4.4 | 3.3 | 1.8 | .58 | .95 |
| 17 | 3.6 | 6.1 | 12 | 17 | 34 | 15 | 14 | 5.0 | 8.3 | 1.5 | .74 | .86 |
| 18 | 3.7 | 5.7 | 12 | 23 | 30 | 14 | 12 | 7.5 | 6.2 | 1.2 | 26 | .90 |
| 19 | 3.7 | 39 | 12 | 28 | 28 | 14 | 11 | 4.4 | 4.3 | 1.0 | 51 | .82 |
| 20 | 3.8 | 40 | 12 | 26 | 26 | 14 | 11 | 3.9 | 3.0 | .90 | 11 | .82 |
| 21 | 3.8 | 18 | 12 | 20 | 23 | 14 | 10 | 4.3 | 2.3 | .78 | 46 | .82 |
| 22 | 4.5 | 13 | 19 | 19 | 23 | 16 | 9.7 | 16 | 1.8 | .95 | 20 | 1.0 |
| 23 | 22 | 11 | 19 | 18 | 22 | 56 | 9.0 | 37 | 1.6 | 1.4 | 11 | 1.2 |
| 24 | 13 | 10 | 14 | 17 | 23 | 43 | 8.8 | 81 | 1.5 | 1.2 | 7.4 | 1.7 |
| 25 | 14 | 9.8 | 12 | 17 | 22 | 36 | 8.8 | 37 | 1.4 | 1.8 | 5.8 | 1.6 |
| 26 | 10 | 9.2 | 11 | 16 | 53 | 26 | 8.4 | 14 | 1.2 | 11 | 5.8 | 1.5 |
| 27 | 8.2 | 8.8 | 10 | 16 | 44 | 21 | 7.9 | 9.9 | 1.2 | 5.3 | 14 | 10 |
| 28 | 7.1 | 14 | 10 | 17 | 30 | 19 | 8.1 | 7.9 | 1.0 | 5.8 | 9.2 | 9.0 |
| 29 | 7.5 | 88 | 10 | 17 | --- | 20 | 8.1 | 6.7 | 1.5 | 9.4 | 6.2 | 4.1 |
| 30 | 9.8 | 30 | 10 | 18 | --- | 33 | 7.7 | 6.0 | .95 | 5.8 | 7.2 | 2.5 |
| 31 | 7.3 | --- | 12 | 72 | --- | 24 | --- | 5.6 | --- | 3.9 | 7.5 | --- |
| TOTAL | 223.9 | 415.5 | 598 | 1782 | 2265 | 659 | 364.5 | 367.0 | 137.05 | 110.33 | 264.88 | 67.37 |
| MEAN | 7.22 | 13.8 | 19.3 | 57.5 | 80.9 | 21.3 | 12.1 | 11.8 | 4.57 | 3.56 | 8.54 | 2.25 |
| MAX | 26 | 88 | 113 | 468 | 474 | 56 | 20 | 81 | 17 | 20 | 51 | 10 |
| MIN | 3.4 | 5.2 | 10 | 15 | 22 | 14 | 7.7 | 3.9 | .95 | .78 | .58 | .82 |
| CFSM | .19 | .36 | .50 | 1.49 | 2.09 | .55 | .31 | .30 | .12 | .09 | .22 | .06 |
| IN. | .22 | .40 | .57 | 1.71 | 2.18 | .63 | .35 | .35 | .13 | .11 | .25 | .06 |

CAL YR 1984 TOTAL 16558.8 MEAN 45.2 MAX 1000 MIN 2.3 CFSM 1.17 IN. 15.92
WTR YR 1985 TOTAL 7254.53 MEAN 19.9 MAX 474 MIN .58 CFSM .51 IN. 6.97

## 02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA

**LOCATION.**--Lat 36°59'00", long 77°48'00", Brunswick County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 612 at Harpers Bridge, 0.1 mi upstream from Beaver Pond Creek, and 2.6 mi northwest of Rawlings.

**DRAINAGE AREA.**--309 mi$^2$.

**PERIOD OF RECORD.**--October 1950 to current year.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 184.88 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 22-30. Records good except those for period with ice effect, Jan. 22-30, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--35 years, 312 ft$^3$/s, 13.71 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 29,900 ft$^3$/s, Oct. 6, 1972, gage height, 23.25 ft, from rating curve extended above 16,000 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 0.40 ft$^3$/s, Oct. 14, 15, 1954; minimum gage height, 1.83 ft, Oct. 15, 1954.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1940 reached a stage of 20.8 ft, discharge, about 19,000 ft$^3$/s, from information by local resident.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 5 | 0700 | 3,210 | 8.38 | Feb. 3 | 0200 | *3,300 | *8.51 |

Minimum discharge, 17 ft$^3$/s, Sept. 20, 22, 23, gage height, 2.25 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 114 | 104 | 277 | 139 | 865 | 270 | 197 | 95 | 96 | 74 | 89 | 76 |
| 2 | 190 | 100 | 199 | 150 | 2530 | 248 | 179 | 99 | 87 | 76 | 97 | 66 |
| 3 | 183 | 95 | 214 | 746 | 2970 | 233 | 167 | 150 | 82 | 85 | 90 | 57 |
| 4 | 127 | 93 | 233 | 2290 | 1180 | 220 | 160 | 170 | 77 | 81 | 77 | 50 |
| 5 | 99 | 141 | 216 | 2910 | 585 | 219 | 157 | 155 | 80 | 70 | 64 | 44 |
| 6 | 86 | 177 | 339 | 1420 | 498 | 214 | 155 | 133 | 166 | 65 | 55 | 40 |
| 7 | 79 | 159 | 530 | 607 | 464 | 204 | 147 | 114 | 203 | 69 | 50 | 36 |
| 8 | 76 | 136 | 323 | 428 | 402 | 197 | 146 | 100 | 152 | 65 | 76 | 34 |
| 9 | 76 | 119 | 230 | 336 | 329 | 198 | 144 | 92 | 136 | 55 | 150 | 33 |
| 10 | 74 | 111 | 198 | 285 | 292 | 199 | 137 | 88 | 135 | 48 | 76 | 31 |
| 11 | 73 | 117 | 180 | 267 | 278 | 195 | 138 | 87 | 139 | 59 | 58 | 28 |
| 12 | 73 | 124 | 168 | 258 | 624 | 192 | 139 | 85 | 118 | 103 | 47 | 25 |
| 13 | 73 | 121 | 160 | 241 | 1490 | 180 | 143 | 82 | 122 | 255 | 41 | 24 |
| 14 | 72 | 115 | 153 | 226 | 936 | 173 | 143 | 87 | 105 | 200 | 38 | 24 |
| 15 | 71 | 107 | 147 | 216 | 515 | 173 | 149 | 89 | 88 | 123 | 34 | 22 |
| 16 | 72 | 102 | 143 | 198 | 407 | 172 | 162 | 82 | 82 | 83 | 30 | 20 |
| 17 | 73 | 99 | 140 | 195 | 349 | 170 | 208 | 100 | 85 | 65 | 32 | 19 |
| 18 | 75 | 96 | 140 | 218 | 316 | 170 | 170 | 167 | 90 | 53 | 126 | 18 |
| 19 | 77 | 122 | 143 | 231 | 291 | 162 | 153 | 131 | 87 | 46 | 341 | 18 |
| 20 | 79 | 222 | 142 | 235 | 274 | 160 | 142 | 104 | 75 | 41 | 299 | 18 |
| 21 | 78 | 249 | 140 | 213 | 257 | 158 | 136 | 87 | 67 | 37 | 305 | 19 |
| 22 | 78 | 184 | 145 | 200 | 244 | 164 | 128 | 83 | 61 | 34 | 286 | 17 |
| 23 | 87 | 150 | 150 | 185 | 237 | 205 | 119 | 97 | 57 | 32 | 202 | 18 |
| 24 | 115 | 135 | 148 | 180 | 234 | 293 | 113 | 425 | 52 | 39 | 143 | 24 |
| 25 | 132 | 127 | 142 | 175 | 234 | 300 | 115 | 708 | 48 | 54 | 107 | 33 |
| 26 | 129 | 122 | 134 | 175 | 295 | 257 | 112 | 327 | 42 | 82 | 95 | 35 |
| 27 | 121 | 117 | 129 | 178 | 374 | 223 | 108 | 206 | 38 | 123 | 113 | 39 |
| 28 | 111 | 129 | 128 | 179 | 324 | 204 | 104 | 152 | 35 | 223 | 90 | 125 |
| 29 | 106 | 300 | 127 | 180 | --- | 195 | 104 | 123 | 41 | 184 | 79 | 113 |
| 30 | 108 | 406 | 125 | 190 | --- | 193 | 100 | 112 | 64 | 135 | 68 | 81 |
| 31 | 109 | --- | 131 | 235 | --- | 200 | --- | 103 | --- | 104 | 70 | --- |
| TOTAL | 3016 | 4379 | 5774 | 13686 | 17794 | 6341 | 4275 | 4633 | 2710 | 2763 | 3428 | 1187 |
| MEAN | 97.3 | 146 | 186 | 441 | 636 | 205 | 143 | 149 | 90.3 | 89.1 | 111 | 39.6 |
| MAX | 190 | 406 | 530 | 2910 | 2970 | 300 | 208 | 708 | 203 | 255 | 341 | 125 |
| MIN | 71 | 93 | 125 | 139 | 234 | 158 | 100 | 82 | 35 | 32 | 30 | 17 |
| CFSM | .31 | .47 | .60 | 1.43 | 2.06 | .66 | .46 | .48 | .29 | .29 | .36 | .13 |
| IN. | .36 | .53 | .70 | 1.65 | 2.14 | .76 | .51 | .56 | .33 | .33 | .41 | .14 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 143179 | MEAN | 391 | MAX | 8150 | MIN | 53 | CFSM | 1.27 | IN. | 17.24 |
| WTR YR 1985 | TOTAL | 69986 | MEAN | 192 | MAX | 2970 | MIN | 17 | CFSM | .62 | IN. | 8.43 |

## 02045500 NOTTOWAY RIVER NEAR STONY CREEK, VA

**LOCATION.**--Lat 36°54'00", long 77°24'00", Sussex County, Hydrologic Unit 03010201, on left bank 15 ft downstream from upstream bridge on U.S. Highway 301, 1.8 mi upstream from Island Swamp, 3.3 mi south of town of Stony Creek, and 4.4 mi upstream from Stony Creek.

**DRAINAGE AREA.**--579 mi².

**PERIOD OF RECORD.**--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 802: 1935(M). WSP 972: 1931(M), 1932, 1934-35, 1939. WSP 2104: Drainage area. WDR VA-74-1: 1972.

**GAGE.**--Water-stage recorder. Datum of gage is 58.42 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: May 18, 28, June 6, 24-30, July 1, 11-13, 20-26, Aug. 8, 9, and Sept. 10, 11, 19, 24, 25. Records good except those for periods of doubtful gage-height record, which are fair. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--56 years, 563 ft³/s, 13.20 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 25,200 ft³/s, Aug. 17, 1940, gage height, 23.66 ft, from rating curve extended above 13,000 ft³/s; minimum, 3.4 ft³/s, Aug. 15, 16, 1977; minimum gage height, 0.62 ft, Sept. 2, 5, 1932.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 5 | 2230 | *4,860 | *14.96 | Feb. 4 | 0530 | 4,410 | 14.39 |

Minimum discharge, 17 ft³/s, Sept. 21-22, gage height, 2.31 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 65 | 122 | 564 | 181 | 1080 | 555 | 303 | 123 | 115 | 66 | 135 | 74 |
| 2 | 149 | 119 | 386 | 193 | 2900 | 486 | 294 | 117 | 107 | 76 | 124 | 85 |
| 3 | 238 | 113 | 379 | 621 | 4150 | 445 | 267 | 137 | 97 | 82 | 125 | 79 |
| 4 | 223 | 107 | 544 | 3440 | 4250 | 409 | 250 | 254 | 87 | 83 | 110 | 69 |
| 5 | 158 | 106 | 429 | 4690 | 1940 | 393 | 239 | 241 | 86 | 88 | 93 | 60 |
| 6 | 122 | 157 | 560 | 4660 | 1080 | 387 | 234 | 207 | 110 | 72 | 77 | 53 |
| 7 | 101 | 214 | 813 | 2330 | 934 | 359 | 225 | 170 | 199 | 62 | 65 | 47 |
| 8 | 90 | 191 | 765 | 940 | 813 | 342 | 215 | 143 | 227 | 62 | 62 | 43 |
| 9 | 84 | 163 | 498 | 690 | 692 | 342 | 213 | 124 | 169 | 64 | 95 | 39 |
| 10 | 82 | 140 | 368 | 556 | 601 | 342 | 209 | 115 | 146 | 60 | 155 | 35 |
| 11 | 79 | 129 | 313 | 488 | 556 | 333 | 204 | 108 | 139 | 56 | 91 | 32 |
| 12 | 77 | 156 | 280 | 469 | 1110 | 323 | 208 | 106 | 154 | 95 | 72 | 31 |
| 13 | 77 | 171 | 254 | 442 | 2480 | 317 | 209 | 102 | 150 | 150 | 58 | 31 |
| 14 | 77 | 155 | 238 | 408 | 2370 | 298 | 212 | 99 | 141 | 246 | 49 | 30 |
| 15 | 77 | 143 | 224 | 383 | 1270 | 290 | 214 | 98 | 124 | 206 | 42 | 28 |
| 16 | 78 | 130 | 214 | 349 | 882 | 284 | 224 | 98 | 106 | 127 | 38 | 23 |
| 17 | 77 | 123 | 206 | 327 | 735 | 277 | 275 | 95 | 96 | 87 | 36 | 21 |
| 18 | 79 | 116 | 204 | 375 | 652 | 276 | 349 | 110 | 95 | 63 | 62 | 20 |
| 19 | 82 | 123 | 207 | 433 | 599 | 268 | 282 | 171 | 102 | 47 | 324 | 20 |
| 20 | 87 | 179 | 216 | 425 | 554 | 257 | 234 | 144 | 96 | 44 | 535 | 18 |
| 21 | 90 | 299 | 214 | 342 | 507 | 254 | 208 | 119 | 84 | 42 | 419 | 18 |
| 22 | 93 | 307 | 204 | 358 | 472 | 260 | 191 | 105 | 72 | 39 | 447 | 19 |
| 23 | 94 | 228 | 209 | 393 | 449 | 309 | 176 | 116 | 63 | 34 | 360 | 45 |
| 24 | 97 | 184 | 211 | 380 | 434 | 409 | 167 | 175 | 55 | 34 | 251 | 25 |
| 25 | 126 | 163 | 209 | 369 | 425 | 574 | 158 | 765 | 48 | 73 | 180 | 21 |
| 26 | 147 | 152 | 198 | 365 | 562 | 515 | 152 | 754 | 44 | 90 | 142 | 29 |
| 27 | 144 | 145 | 186 | 352 | 779 | 417 | 143 | 406 | 42 | 135 | 124 | 372 |
| 28 | 135 | 146 | 178 | 330 | 687 | 365 | 139 | 240 | 40 | 176 | 134 | 509 |
| 29 | 128 | 252 | 177 | 322 | --- | 328 | 134 | 181 | 39 | 358 | 115 | 249 |
| 30 | 121 | 548 | 176 | 334 | --- | 313 | 129 | 143 | 52 | 243 | 95 | 167 |
| 31 | 122 | --- | 174 | 371 | --- | 304 | --- | 128 | --- | 172 | 83 | --- |
| TOTAL | 3399 | 5281 | 9798 | 26316 | 33963 | 11031 | 6457 | 5894 | 3085 | 3232 | 4698 | 2292 |
| MEAN | 110 | 176 | 316 | 849 | 1213 | 356 | 215 | 190 | 103 | 104 | 152 | 76.4 |
| MAX | 238 | 548 | 813 | 4690 | 4250 | 574 | 349 | 765 | 227 | 358 | 535 | 509 |
| MIN | 65 | 106 | 174 | 181 | 425 | 254 | 129 | 95 | 39 | 34 | 36 | 18 |
| CFSM | .19 | .30 | .55 | 1.47 | 2.09 | .61 | .37 | .33 | .18 | .18 | .26 | .13 |
| IN. | .22 | .34 | .63 | 1.69 | 2.18 | .71 | .41 | .38 | .20 | .21 | .30 | .15 |

CAL YR 1984 TOTAL 275423 MEAN 753 MAX 10500 MIN 54 CFSM 1.30 IN. 17.70
WTR YR 1985 TOTAL 115446 MEAN 316 MAX 4690 MIN 18 CFSM .55 IN. 7.42

## 02046000 STONY CREEK NEAR DINWIDDIE, VA

**LOCATION.**--Lat 37°04'01", long 77°36'10", Dinwiddie County, Hydrologic Unit 03010201, on right bank at upstream side of upstream bridge on U.S. Highway 1, 1.2 mi southwest of Dinwiddie, 1.7 mi downstream from Chamberlains Bed Creek, and 5.7 mi downstream from confluence of White Oak and Butterwood Creeks.

**DRAINAGE AREA.**--112 mi$^2$.

**PERIOD OF RECORD.**--September 1946 to current year. Published as "at Dinwiddie" September 1946 to September 1947 and October 1949 to September 1950.

**REVISED RECORDS.**--WSP 1303: 1947(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 129.94 ft above National Geodetic Vertical Datum of 1929. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Oct. 13-23, Jan. 16, 24-29, Feb. 6, 7, and Sept. 7-21. Records good except those for periods of doubtful gage-height record, Oct. 13-23 and Sept. 7-21, and periods with ice effect, Jan. 16, 24-29 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--39 years, 113 ft$^3$/s, 13.70 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 11,400 ft$^3$/s, Oct. 6, 1972, gage height, 20.84 ft, from rating curve extended above 5,800 ft$^3$/s on basis of contracted-opening measurement of peak flow; no flow for part of Oct. 13, 1954.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,200 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 4 | 1200 | 1,470 | 8.92 | Feb. 2 | 1530 | *1,580 | *9.16 |

Minimum discharge, 0.29 ft$^3$/s, July 25, gage height, 0.89 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28 | 23 | 90 | 48 | 720 | 100 | 49 | 17 | 15 | 2.0 | 17 | 8.4 |
| 2 | 55 | 22 | 64 | 57 | 1430 | 89 | 47 | 15 | 13 | 3.2 | 13 | 6.5 |
| 3 | 52 | 20 | 102 | 476 | 1040 | 81 | 44 | 27 | 11 | 5.1 | 10 | 4.7 |
| 4 | 38 | 19 | 118 | 1340 | 444 | 75 | 42 | 38 | 9.6 | 3.8 | 7.6 | 3.5 |
| 5 | 28 | 24 | 90 | 969 | 242 | 74 | 41 | 36 | 19 | 3.7 | 5.8 | 2.9 |
| 6 | 21 | 51 | 227 | 441 | 195 | 69 | 39 | 29 | 53 | 3.9 | 4.7 | 2.8 |
| 7 | 17 | 53 | 216 | 241 | 175 | 63 | 37 | 24 | 57 | 11 | 3.9 | 2.6 |
| 8 | 14 | 42 | 135 | 169 | 160 | 61 | 37 | 20 | 45 | 12 | 3.4 | 2.4 |
| 9 | 12 | 34 | 94 | 131 | 126 | 63 | 42 | 17 | 32 | 9.2 | 2.7 | 1.9 |
| 10 | 9.9 | 28 | 75 | 111 | 111 | 62 | 36 | 15 | 25 | 19 | 2.0 | 1.8 |
| 11 | 8.7 | 35 | 66 | 105 | 105 | 60 | 35 | 14 | 20 | 11 | 1.6 | 1.6 |
| 12 | 8.6 | 62 | 60 | 103 | 465 | 62 | 36 | 13 | 20 | 58 | 1.3 | 1.4 |
| 13 | 6.0 | 50 | 56 | 96 | 616 | 58 | 36 | 13 | 26 | 45 | 1.1 | 1.3 |
| 14 | 5.4 | 36 | 52 | 91 | 332 | 56 | 36 | 12 | 23 | 22 | .92 | 1.2 |
| 15 | 5.0 | 30 | 48 | 85 | 197 | 54 | 37 | 11 | 18 | 21 | .83 | 1.1 |
| 16 | 5.0 | 25 | 46 | 70 | 153 | 51 | 39 | 11 | 14 | 18 | .65 | 1.0 |
| 17 | 5.1 | 22 | 45 | 75 | 131 | 53 | 37 | 15 | 17 | 8.3 | .67 | .88 |
| 18 | 5.2 | 20 | 45 | 91 | 116 | 51 | 34 | 17 | 16 | 4.2 | 10 | .78 |
| 19 | 5.2 | 42 | 45 | 107 | 106 | 47 | 32 | 13 | 13 | 2.7 | 130 | .70 |
| 20 | 5.4 | 88 | 44 | 102 | 99 | 47 | 31 | 11 | 11 | 1.8 | 156 | .68 |
| 21 | 5.4 | 74 | 44 | 85 | 91 | 46 | 29 | 10 | 8.9 | 1.3 | 267 | .62 |
| 22 | 5.5 | 59 | 47 | 72 | 86 | 50 | 27 | 15 | 7.4 | 1.1 | 181 | 7.1 |
| 23 | 5.6 | 45 | 46 | 68 | 83 | 70 | 25 | 32 | 4.9 | .86 | 83 | 13 |
| 24 | 10 | 37 | 42 | 69 | 82 | 87 | 24 | 144 | 3.6 | .60 | 48 | 12 |
| 25 | 15 | 32 | 41 | 66 | 80 | 105 | 23 | 214 | 3.0 | 1.9 | 32 | 13 |
| 26 | 15 | 29 | 38 | 66 | 135 | 94 | 22 | 101 | 2.4 | 17 | 27 | 15 |
| 27 | 17 | 27 | 37 | 67 | 168 | 73 | 20 | 52 | 1.8 | 49 | 24 | 163 |
| 28 | 18 | 31 | 37 | 68 | 125 | 61 | 20 | 33 | 1.1 | 86 | 21 | 114 |
| 29 | 20 | 128 | 37 | 70 | --- | 57 | 20 | 25 | .94 | 56 | 17 | 66 |
| 30 | 24 | 125 | 36 | 75 | --- | 55 | 18 | 20 | 1.1 | 35 | 14 | 37 |
| 31 | 23 | --- | 40 | 137 | --- | 52 | --- | 17 | --- | 24 | 11 | --- |
| TOTAL | 493.0 | 1313 | 2163 | 5751 | 7813 | 2026 | 995 | 1031 | 492.74 | 537.66 | 1098.17 | 488.86 |
| MEAN | 15.9 | 43.8 | 69.8 | 186 | 279 | 65.4 | 33.2 | 33.3 | 16.4 | 17.3 | 35.4 | 16.3 |
| MAX | 55 | 128 | 227 | 1340 | 1430 | 105 | 49 | 214 | 57 | 86 | 267 | 163 |
| MIN | 5.0 | 19 | 36 | 48 | 80 | 46 | 18 | 10 | .94 | .60 | .65 | .62 |
| CFSM | .14 | .39 | .62 | 1.66 | 2.49 | .58 | .30 | .30 | .15 | .15 | .32 | .15 |
| IN. | .16 | .44 | .72 | 1.91 | 2.60 | .67 | .33 | .34 | .16 | .18 | .36 | .16 |

CAL YR 1984 TOTAL 61237.6 MEAN 167 MAX 3290 MIN 3.3 CFSM 1.49 IN. 20.34
WTR YR 1985 TOTAL 24202.43 MEAN 66.3 MAX 1430 MIN .60 CFSM .59 IN. 8.04

## 02047000 NOTTOWAY RIVER NEAR SEBRELL, VA
(National stream-quality accounting network station)

**LOCATION.**--Lat 36°46'13", long 77°09'59", Southampton County, Hydrologic Unit 03010201, on right bank 1,000 ft upstream from bridge on State Highway 653, 1 mi downstream from Three Creek, 2.5 mi southwest of Sebrell, and 5.5 mi upstream from Assamoosick Swamp.

**DRAINAGE AREA.**--1,421 mi².

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--September 1941 to current year.

**REVISED RECORDS.**--WSP 1333: 1942, 1944, 1948-49. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 5.94 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1950, nonrecording gage at same site and datum.

**REMARKS.**--No estimated daily discharges. Records good.

**AVERAGE DISCHARGE.**--44 years, 1,365 ft³/s, 13.04 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 26,000 ft³/s, July 19, 1975, gage height, 24.43 ft; minimum, 4.0 ft³/s, Oct. 25, 1981; minimum gage height, 2.82 ft, Oct. 24-25, 1981.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 6,670 ft³/s, Feb. 7, gage height, 16.38 ft; minimum, 43 ft³/s, Sept. 23-25, gage height, 2.87 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 99 | 165 | 629 | 337 | 1280 | 2240 | 799 | 241 | 263 | 64 | 482 | 185 |
| 2 | 100 | 166 | 813 | 347 | 2190 | 2050 | 731 | 229 | 222 | 60 | 433 | 155 |
| 3 | 111 | 164 | 796 | 498 | 3090 | 1830 | 681 | 229 | 193 | 67 | 434 | 136 |
| 4 | 244 | 156 | 772 | 1350 | 3830 | 1610 | 631 | 246 | 171 | 93 | 381 | 134 |
| 5 | 323 | 153 | 949 | 2580 | 4870 | 1410 | 580 | 329 | 160 | 101 | 322 | 121 |
| 6 | 281 | 150 | 1040 | 3440 | 6130 | 1260 | 546 | 418 | 199 | 115 | 248 | 105 |
| 7 | 217 | 149 | 1090 | 4420 | 6590 | 1150 | 521 | 382 | 312 | 111 | 183 | 93 |
| 8 | 177 | 227 | 1390 | 5740 | 5790 | 1070 | 498 | 328 | 382 | 98 | 144 | 82 |
| 9 | 152 | 284 | 1480 | 6520 | 4310 | 1000 | 480 | 286 | 414 | 86 | 121 | 72 |
| 10 | 136 | 258 | 1230 | 5950 | 3060 | 961 | 466 | 250 | 350 | 88 | 108 | 66 |
| 11 | 125 | 226 | 959 | 4240 | 2230 | 924 | 453 | 232 | 282 | 141 | 133 | 62 |
| 12 | 118 | 197 | 798 | 2620 | 2000 | 890 | 433 | 220 | 249 | 148 | 179 | 57 |
| 13 | 113 | 190 | 698 | 1750 | 2510 | 860 | 421 | 229 | 237 | 162 | 127 | 54 |
| 14 | 108 | 237 | 622 | 1410 | 3210 | 838 | 424 | 226 | 247 | 240 | 101 | 51 |
| 15 | 105 | 251 | 560 | 1260 | 3840 | 800 | 424 | 201 | 211 | 325 | 84 | 49 |
| 16 | 105 | 229 | 509 | 1160 | 4500 | 758 | 433 | 182 | 203 | 368 | 72 | 48 |
| 17 | 103 | 206 | 471 | 1090 | 4700 | 730 | 475 | 173 | 176 | 315 | 67 | 47 |
| 18 | 103 | 188 | 441 | 1080 | 3900 | 700 | 549 | 174 | 155 | 276 | 69 | 46 |
| 19 | 111 | 187 | 432 | 1150 | 2860 | 677 | 655 | 166 | 147 | 240 | 370 | 45 |
| 20 | 109 | 196 | 429 | 1250 | 2130 | 660 | 592 | 196 | 139 | 216 | 753 | 45 |
| 21 | 105 | 232 | 428 | 1200 | 1760 | 643 | 505 | 239 | 136 | 159 | 1190 | 45 |
| 22 | 104 | 388 | 428 | 1080 | 1540 | 653 | 430 | 203 | 127 | 106 | 1400 | 44 |
| 23 | 105 | 498 | 414 | 1010 | 1390 | 799 | 386 | 224 | 111 | 85 | 1500 | 43 |
| 24 | 106 | 437 | 404 | 1050 | 1300 | 948 | 352 | 329 | 99 | 70 | 1300 | 43 |
| 25 | 107 | 357 | 405 | 1020 | 1240 | 1200 | 325 | 523 | 90 | 67 | 887 | 56 |
| 26 | 117 | 302 | 395 | 993 | 1340 | 1420 | 309 | 1060 | 81 | 87 | 610 | 64 |
| 27 | 162 | 269 | 384 | 955 | 1720 | 1460 | 291 | 1410 | 74 | 98 | 449 | 1310 |
| 28 | 188 | 254 | 362 | 953 | 2140 | 1320 | 282 | 1010 | 68 | 155 | 355 | 3360 |
| 29 | 189 | 268 | 349 | 937 | --- | 1140 | 269 | 662 | 65 | 351 | 294 | 4340 |
| 30 | 181 | 311 | 342 | 896 | --- | 994 | 253 | 458 | 66 | 647 | 270 | 3880 |
| 31 | 171 | --- | 338 | 939 | --- | 878 | --- | 331 | --- | 645 | 225 | --- |
| TOTAL | 4475 | 7295 | 20357 | 59225 | 85450 | 33873 | 14194 | 11386 | 5629 | 5784 | 13291 | 14838 |
| MEAN | 144 | 243 | 657 | 1910 | 3052 | 1093 | 473 | 367 | 188 | 187 | 429 | 495 |
| MAX | 323 | 498 | 1480 | 6520 | 6590 | 2240 | 799 | 1410 | 414 | 647 | 1500 | 4340 |
| MIN | 99 | 149 | 338 | 337 | 1240 | 643 | 253 | 166 | 65 | 60 | 67 | 43 |
| CFSM | .10 | .17 | .46 | 1.34 | 2.15 | .77 | .33 | .26 | .13 | .13 | .30 | .35 |
| IN. | .12 | .19 | .53 | 1.55 | 2.24 | .89 | .37 | .30 | .15 | .15 | .35 | .39 |

CAL YR 1984 TOTAL 688659 MEAN 1882 MAX 11300 MIN 98 CFSM 1.32 IN. 18.03
WTR YR 1985 TOTAL 275797 MEAN 756 MAX 6590 MIN 43 CFSM .53 IN. 7.22

## 02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947, 1978 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1946 to September 1947.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | SPECIFIC CONDUCTANCE LAB (US/CM) | PH (STANDARD UNITS) | PH LAB (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | TURBIDITY (NTU) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 08:15 | 220 | 90 | 92 | 7.1 | 7.3 | 5.0 | 770 | 3.1 | 12.0 | 93 |
| FEB 20... | 09:00 | 2180 | 57 | 58 | 6.8 | 6.5 | 4.5 | 763 | 10 | 11.8 | 91 |
| MAY 22... | 13:45 | 184 | 93 | 92 | 7.3 | 7.1 | 24.0 | 754 | 2.5 | 7.4 | 89 |
| SEP 03... | 12:00 | 112 | 85 | 85 | 6.8 | 6.9 | 25.0 | 771 | 4.0 | 5.6 | 67 |

| DATE | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) | HARDNESS NONCARBONATE (MG/L AS CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY LAB (MG/L AS CACO3) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 89 | 100 | 27 | 27 | 6.7 | 2.4 | 6.6 | 2.9 | 30 | 27 | 5.1 |
| FEB 20... | 40 | 48 | 15 | 15 | 4.0 | 1.3 | 3.8 | 1.5 | 9.0 | 11 | 9.1 |
| MAY 22... | 16 | 13 | 30 | 30 | 7.2 | 2.9 | 7.2 | 1.7 | 36 | 36 | 4.4 |
| SEP 03... | -- | -- | 33 | 33 | 11 | 1.4 | 2.8 | 1.9 | 21 | 25 | 9.1 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 7.4 | <0.1 | 16 | 73 | 64 | <0.10 | <0.01 | 0.5 | <0.01 | <0.01 | 0.01 |
| FEB 20... | 5.6 | <0.1 | 10 | 55 | 42 | 0.11 | 0.01 | 0.5 | <0.01 | <0.01 | <0.01 |
| MAY 22... | 7.5 | 0.1 | 11 | 59 | 64 | 0.11 | 0.05 | 0.5 | <0.01 | <0.01 | <0.01 |
| SEP 03... | 7.9 | <0.1 | 8.3 | 77 | 59 | 0.10 | 0.08 | 0.8 | 0.06 | 0.05 | 0.02 |

## 02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | ALUMINUM, DIS-SOLVED (UG/L AS AL) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | BERYLLIUM, DIS-SOLVED (UG/L AS BE) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHROMIUM, DIS-SOLVED (UG/L AS CR) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) | LITHIUM DIS-SOLVED (UG/L AS LI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 30 | <1 | 24 | <0.5 | <1 | 1 | <3 | <1 | 700 | <1 | <4 |
| FEB 20... | 100 | <1 | 30 | <0.5 | <1 | <1 | <3 | 1 | 270 | <1 | 5 |
| MAY 22... | 60 | <1 | 32 | <0.5 | <1 | 5 | <3 | 1 | 410 | 5 | 5 |
| SEP 03... | 90 | <1 | 65 | <0.5 | 1 | 2 | <3 | 3 | 1100 | 3 | 9 |

| DATE | MANGANESE, DIS-SOLVED (UG/L AS MN) | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYBDENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELENIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRONTIUM, DIS-SOLVED (UG/L AS SR) | VANADIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) | SEDIMENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 33 | <0.1 | <10 | <1 | <1 | <1 | 56 | <6 | 3 | 3 | 92 |
| FEB 20... | 22 | <0.1 | <10 | <1 | <1 | <1 | 30 | <6 | 5 | 10 | 96 |
| MAY 22... | 59 | 0.2 | <10 | <1 | <1 | <1 | 70 | <6 | 4 | 7 | 92 |
| SEP 03... | 150 | <0.1 | <10 | 2 | <1 | <1 | 66 | <6 | 32 | 12 | 46 |

## 02047100 ASSAMOOSICK SWAMP NEAR SEBRELL, VA

**LOCATION.**--Lat 36°46'22", long 77°05'57", Southampton County, Hydrologic Unit 03010201, near center of span on upstream side of bridge on State Highway 35, 0.7 mi upstream from Indian Branch, 1.7 mi southeast of Sebrell, and 2.8 mi upstream from mouth.

**DRAINAGE AREA.**--86.4 mi².

**PERIOD OF RECORD.**--March 1982 to current year.

**GAGE.**--Water-stage recorder. Elevation of gage is 20 ft above National Geodetic Vertical Datum of 1929, from topographic map.

**REMARKS.**--Estimated daily discharges: Jan. 11-29. Records good except those for periods of no gage-height record, Jan. 11-16, 21-24, and periods with ice effect, Jan. 17-20, 25-29, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 1,730 ft³/s, Sept. 28, 1985, gage height, 7.42 ft; no flow at times each year.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 1,730 ft³/s, Sept. 28, gage height, 7.42 ft; no flow many days during year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .56 | .00 | 5.4 | 11 | 118 | 154 | 46 | .56 | 2.1 | .00 | 16 | .98 |
| 2 | .47 | .00 | 9.0 | 12 | 194 | 170 | 38 | .41 | .98 | .00 | 18 | .56 |
| 3 | .38 | .00 | 31 | 41 | 259 | 154 | 34 | .80 | .47 | .00 | 9.5 | .32 |
| 4 | .26 | .00 | 46 | 156 | 354 | 131 | 30 | 1.5 | .20 | .00 | 5.0 | .20 |
| 5 | .17 | .00 | 51 | 222 | 388 | 108 | 27 | 1.7 | .26 | .00 | 3.3 | .06 |
| 6 | .11 | .03 | 74 | 306 | 347 | 91 | 23 | 1.7 | 3.7 | .00 | 2.1 | .01 |
| 7 | .08 | .02 | 88 | 368 | 280 | 75 | 21 | 1.8 | 25 | .00 | 1.2 | .00 |
| 8 | .04 | .02 | 89 | 311 | 216 | 63 | 20 | 1.7 | 41 | .00 | .68 | .00 |
| 9 | .03 | .02 | 82 | 255 | 170 | 57 | 19 | 1.5 | 74 | .00 | .32 | .00 |
| 10 | .02 | .01 | 75 | 196 | 146 | 51 | 17 | .98 | 59 | .00 | .17 | .00 |
| 11 | .02 | .02 | 70 | 165 | 123 | 45 | 15 | .74 | 28 | .00 | .05 | .00 |
| 12 | .01 | .03 | 59 | 125 | 154 | 42 | 14 | 1.9 | 13 | .00 | .03 | .00 |
| 13 | .00 | .02 | 48 | 95 | 198 | 40 | 13 | 4.8 | 7.0 | .00 | .02 | .00 |
| 14 | .00 | .02 | 40 | 80 | 228 | 37 | 12 | 4.2 | 3.7 | .00 | .00 | .00 |
| 15 | .00 | .02 | 35 | 72 | 257 | 35 | 13 | 2.4 | 1.8 | .17 | .00 | .00 |
| 16 | .00 | .02 | 32 | 65 | 261 | 33 | 14 | 1.6 | 1.0 | .08 | .00 | .00 |
| 17 | .00 | .02 | 29 | 60 | 230 | 31 | 16 | 1.7 | .74 | .05 | .03 | .00 |
| 18 | .00 | .02 | 26 | 59 | 186 | 29 | 13 | 1.5 | .50 | .03 | .17 | .00 |
| 19 | .00 | .16 | 25 | 59 | 148 | 27 | 10 | 1.2 | 2.9 | .00 | 2.5 | .00 |
| 20 | .00 | .35 | 24 | 58 | 118 | 25 | 7.0 | 1.7 | 3.4 | .00 | 35 | .00 |
| 21 | .00 | .18 | 22 | 53 | 98 | 23 | 6.0 | 6.6 | 1.1 | .00 | 191 | .00 |
| 22 | .00 | .16 | 21 | 50 | 85 | 30 | 4.8 | 6.6 | .35 | .00 | 216 | .00 |
| 23 | .00 | .16 | 20 | 46 | 75 | 63 | 3.9 | 16 | .10 | .00 | 135 | .00 |
| 24 | .00 | .17 | 19 | 44 | 69 | 82 | 3.0 | 42 | .04 | .00 | 61 | .00 |
| 25 | .00 | .17 | 18 | 42 | 63 | 116 | 2.5 | 88 | .01 | .00 | 31 | .00 |
| 26 | .00 | .18 | 16 | 42 | 92 | 123 | 1.9 | 91 | .00 | .00 | 20 | .03 |
| 27 | .00 | .20 | 15 | 41 | 127 | 119 | 1.5 | 59 | .00 | .00 | 13 | 234 |
| 28 | .00 | .35 | 14 | 41 | 144 | 105 | 1.3 | 35 | .00 | .01 | 8.5 | 1140 |
| 29 | .00 | 1.1 | 13 | 40 | --- | 89 | 1.0 | 18 | .00 | .96 | 4.5 | 1440 |
| 30 | .00 | 1.0 | 13 | 52 | --- | 73 | .80 | 6.4 | .00 | 10 | 2.9 | 776 |
| 31 | .00 | --- | 12 | 68 | --- | 58 | --- | 3.7 | --- | 14 | 1.8 | --- |
| TOTAL | 2.15 | 4.45 | 1121.4 | 3235 | 5128 | 2279 | 428.70 | 406.69 | 270.35 | 25.30 | 778.77 | 3592.16 |
| MEAN | .07 | .15 | 36.2 | 104 | 183 | 73.5 | 14.3 | 13.1 | 9.01 | .82 | 25.1 | 120 |
| MAX | .56 | 1.1 | 89 | 368 | 388 | 170 | 46 | 91 | 74 | 14 | 216 | 1440 |
| MIN | .00 | .00 | 5.4 | 11 | 63 | 23 | .80 | .41 | .00 | .00 | .00 | .00 |
| CFSM | .00 | .00 | .42 | 1.20 | 2.12 | .85 | .17 | .15 | .10 | .01 | .29 | 1.39 |
| IN. | .00 | .00 | .48 | 1.39 | 2.21 | .98 | .18 | .18 | .12 | .01 | .34 | 1.55 |

CAL YR 1984 TOTAL 39636.61 MEAN 108 MAX 1160 MIN .00 CFSM 1.25 IN. 17.07
WTR YR 1985 TOTAL 17271.97 MEAN 47.3 MAX 1440 MIN .00 CFSM .55 IN. 7.44

## 02047500 BLACKWATER RIVER NEAR DENDRON, VA

LOCATION.--Lat 37°01'30", long 76°52'30", Surry County, Hydrologic Unit 03010202, on left bank 10 ft upstream from Walls Bridge on State Highway 617, 1.2 mi downstream from Cypress Swamp, and 3.5 mi southeast of Dendron.

DRAINAGE AREA.--294 mi$^2$.

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.99 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Aug. 13, 1980, at site 25 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 17-30. Records good except those for period of no gage-height record, Jan. 20-22, and periods with ice effect, Jan. 17-19 and Jan. 23-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--44 years, 311 ft$^3$/s, 14.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,850 ft$^3$/s, Sept. 28, 1985, gage height, 9.11 ft, from rating curve extended above 4,900 ft$^3$/s; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.1 ft, from U.S. Army Corps of Engineers floodmarks, discharge, 10,000 ft$^3$/s, from rating curve extended above 4,900 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,850 ft$^3$/s, Sept. 28, gage height, 9.11 ft, from rating curve extended above 4,900 ft$^3$/s; no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .86 | .00 | 79 | 64 | 355 | 416 | 221 | 8.6 | 20 | 11 | 213 | 56 |
| 2 | 3.1 | .00 | 91 | 69 | 507 | 396 | 213 | 7.5 | 14 | 87 | 178 | 35 |
| 3 | 3.1 | .00 | 127 | 125 | 689 | 385 | 197 | 14 | 8.3 | 44 | 150 | 24 |
| 4 | 3.1 | .00 | 145 | 294 | 857 | 382 | 175 | 21 | 5.2 | 20 | 121 | 21 |
| 5 | 2.9 | .00 | 166 | 573 | 880 | 353 | 159 | 25 | 16 | 4.7 | 86 | 15 |
| 6 | 2.1 | .00 | 213 | 776 | 932 | 350 | 154 | 31 | 142 | 1.2 | 76 | 9.6 |
| 7 | 1.0 | .00 | 229 | 880 | 966 | 294 | 146 | 29 | 326 | 2.1 | 43 | 5.1 |
| 8 | .15 | .00 | 232 | 873 | 848 | 263 | 140 | 23 | 386 | 4.2 | 27 | 2.1 |
| 9 | .02 | .00 | 227 | 868 | 749 | 287 | 125 | 17 | 235 | 11 | 18 | .69 |
| 10 | .00 | .00 | 225 | 799 | 666 | 225 | 116 | 15 | 166 | 12 | 13 | .04 |
| 11 | .00 | .07 | 213 | 705 | 546 | 199 | 106 | 15 | 101 | 26 | 9.2 | .00 |
| 12 | .00 | 1.5 | 192 | 616 | 535 | 189 | 99 | 42 | 65 | 24 | 5.0 | .00 |
| 13 | .00 | 3.0 | 178 | 548 | 610 | 177 | 90 | 48 | 55 | 15 | 2.1 | .00 |
| 14 | .00 | 4.0 | 165 | 473 | 709 | 167 | 85 | 25 | 43 | 10 | .58 | .00 |
| 15 | .00 | 4.4 | 153 | 403 | 710 | 159 | 85 | 16 | 50 | 10 | .03 | .00 |
| 16 | .00 | 6.1 | 140 | 333 | 673 | 151 | 85 | 13 | 56 | 18 | .00 | .00 |
| 17 | .00 | 7.5 | 127 | 295 | 694 | 147 | 82 | 15 | 56 | 48 | .00 | .00 |
| 18 | .00 | 8.8 | 116 | 285 | 716 | 143 | 75 | 24 | 44 | 47 | 4.6 | .00 |
| 19 | .00 | 18 | 107 | 280 | 668 | 135 | 68 | 16 | 40 | 35 | 288 | .00 |
| 20 | .00 | 36 | 100 | 265 | 556 | 130 | 58 | 9.5 | 29 | 28 | 1670 | .00 |
| 21 | .00 | 42 | 93 | 230 | 466 | 124 | 50 | 6.4 | 19 | 45 | 1100 | .00 |
| 22 | .00 | 49 | 91 | 205 | 399 | 139 | 42 | 5.8 | 12 | 37 | 556 | .00 |
| 23 | .00 | 57 | 114 | 180 | 352 | 215 | 34 | 34 | 8.5 | 39 | 291 | .00 |
| 24 | .00 | 57 | 86 | 170 | 313 | 287 | 29 | 93 | 5.6 | 287 | 423 | .00 |
| 25 | .00 | 54 | 73 | 165 | 284 | 295 | 26 | 137 | 2.1 | 375 | 556 | .00 |
| 26 | .00 | 53 | 69 | 155 | 320 | 303 | 21 | 116 | .11 | 244 | 503 | 23 |
| 27 | .00 | 53 | 67 | 150 | 384 | 276 | 17 | 86 | .00 | 225 | 409 | 1940 |
| 28 | .00 | 54 | 66 | 148 | 390 | 259 | 15 | 57 | .00 | 256 | 311 | 5540 |
| 29 | .00 | 73 | 65 | 145 | --- | 251 | 13 | 41 | .00 | 297 | 218 | 3850 |
| 30 | .00 | 77 | 63 | 190 | --- | 257 | 11 | 33 | .00 | 325 | 141 | 2150 |
| 31 | .00 | --- | 62 | 264 | --- | 232 | --- | 26 | --- | 272 | 87 | --- |
| TOTAL | 16.33 | 658.37 | 4074 | 11526 | 16774 | 7586 | 2737 | 1049.8 | 1904.81 | 2860.2 | 7499.51 | 13671.53 |
| MEAN | .53 | 21.9 | 131 | 372 | 599 | 245 | 91.2 | 33.9 | 63.5 | 92.3 | 242 | 456 |
| MAX | 3.1 | 77 | 232 | 880 | 966 | 416 | 221 | 137 | 386 | 375 | 1670 | 5540 |
| MIN | .00 | .00 | 62 | 64 | 284 | 124 | 11 | 5.8 | .00 | 1.2 | .00 | .00 |
| CFSM | .00 | .07 | .45 | 1.27 | 2.04 | .83 | .31 | .12 | .22 | .31 | .82 | 1.55 |
| IN. | .00 | .08 | .52 | 1.46 | 2.12 | .96 | .35 | .13 | .24 | .36 | .95 | 1.73 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 138216.93 | MEAN | 378 | MAX | 2940 | MIN | .00 | CFSM | 1.29 | IN. | 17.49 |
| WTR YR 1985 | TOTAL | 70357.55 | MEAN | 193 | MAX | 5540 | MIN | .00 | CFSM | .66 | IN. | 8.90 |

## 02048000 BLACKWATER RIVER AT ZUNI, VA

**LOCATION.**--Lat 36°52'05", long 76°50'07", Isle of Wight County, Hydrologic Unit 03010202, on left bank at downstream side of bridge on U.S. Highway 460 at Zuni, 1.6 mi downstream from Pope Swamp, and 4.2 mi upstream from Antioch Swamp.

**DRAINAGE AREA.**--456 mi².

**PERIOD OF RECORD.**--October 1942 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 8.56 ft above National Geodetic Vertical Datum of 1929. Prior to July 18, 1957, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Oct. 12 to Nov. 12, Jan. 25-30, Apr. 22 to May 21, June 4, June 17 to July 5, July 11-25, and Sept. 3-24. Records good except those for periods of doubtful gage-height record, Oct. 12 to Nov. 12, Apr. 22 to May 21, June 4, June 17 to July 5, July 11-25, and Sept. 3-24, and period with ice effect, Jan. 25-30, which are fair. Several measurements of water temperatures were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--43 years, 496 ft³/s, 14.77 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 7,000 ft³/s, Mar. 21, 1975; maximum gage height, 17.51 ft, June 5, 1963; no flow at times.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1940 reached a stage of 23.2 ft, discharge, 16,000 ft³/s, from rating curve extended above 5,500 ft³/s.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 6,640 ft³/s, Sept. 29, gage height, 15.38 ft; minimum daily, 0.03 ft³/s, Oct. 31, Nov. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.0 | .03 | 64 | 78 | 397 | 747 | 418 | 15 | 21 | 18 | 395 | 210 |
| 2 | 7.4 | .03 | 64 | 77 | 574 | 803 | 387 | 14 | 11 | 16 | 357 | 122 |
| 3 | 6.7 | .03 | 91 | 101 | 813 | 810 | 350 | 13 | 4.7 | 30 | 282 | 78 |
| 4 | 8.6 | .05 | 141 | 259 | 1050 | 774 | 319 | 21 | 8.5 | 34 | 210 | 55 |
| 5 | 5.9 | .07 | 167 | 418 | 1240 | 722 | 296 | 25 | 9.2 | 23 | 157 | 35 |
| 6 | 5.7 | .15 | 205 | 604 | 1400 | 668 | 267 | 28 | 149 | 16 | 116 | 30 |
| 7 | 5.4 | .21 | 251 | 890 | 1430 | 608 | 233 | 28 | 361 | 14 | 80 | 18 |
| 8 | 5.5 | .23 | 296 | 1140 | 1430 | 560 | 211 | 27 | 467 | 11 | 56 | 12 |
| 9 | 5.3 | .21 | 326 | 1210 | 1390 | 509 | 198 | 26 | 534 | 8.5 | 36 | 8.0 |
| 10 | 3.7 | .20 | 341 | 1200 | 1230 | 447 | 189 | 23 | 541 | 6.3 | 20 | 7.0 |
| 11 | 2.9 | 1.0 | 345 | 1170 | 1090 | 423 | 175 | 20 | 417 | 90 | 9.1 | 5.2 |
| 12 | 1.9 | 1.7 | 332 | 1110 | 1090 | 389 | 161 | 17 | 261 | 85 | 4.4 | 4.0 |
| 13 | 1.2 | 2.1 | 314 | 1010 | 1210 | 336 | 148 | 16 | 166 | 45 | 2.0 | 2.8 |
| 14 | .80 | 2.6 | 289 | 868 | 1240 | 296 | 139 | 27 | 89 | 15 | 1.4 | 1.7 |
| 15 | .64 | 3.0 | 261 | 752 | 1280 | 270 | 132 | 33 | 48 | 13 | 1.1 | .90 |
| 16 | .45 | 3.5 | 237 | 653 | 1280 | 248 | 128 | 22 | 27 | 45 | .84 | .60 |
| 17 | .35 | 4.1 | 215 | 565 | 1210 | 231 | 124 | 20 | 70 | 120 | .83 | .53 |
| 18 | .25 | 4.8 | 195 | 503 | 1120 | 218 | 115 | 26 | 180 | 130 | 10 | .42 |
| 19 | .20 | 7.7 | 177 | 462 | 1070 | 204 | 105 | 29 | 200 | 50 | 154 | .38 |
| 20 | .17 | 11 | 159 | 445 | 1050 | 193 | 97 | 19 | 110 | 40 | 160 | .35 |
| 21 | .13 | 14 | 144 | 414 | 1000 | 185 | 89 | 13 | 60 | 35 | 306 | .32 |
| 22 | .12 | 22 | 132 | 379 | 887 | 195 | 72 | 10 | 30 | 38 | 1190 | 2.2 |
| 23 | .11 | 30 | 122 | 332 | 757 | 341 | 60 | 26 | 13 | 47 | 1280 | 2.5 |
| 24 | .05 | 21 | 114 | 299 | 648 | 466 | 50 | 115 | 2.5 | 51 | 942 | 3.5 |
| 25 | .05 | 27 | 116 | 270 | 566 | 596 | 43 | 290 | .80 | 60 | 590 | 4.7 |
| 26 | .05 | 34 | 117 | 260 | 587 | 659 | 36 | 351 | .32 | 110 | 451 | 12 |
| 27 | .04 | 37 | 103 | 250 | 649 | 654 | 30 | 279 | .27 | 272 | 550 | 1570 |
| 28 | .04 | 38 | 92 | 245 | 694 | 599 | 25 | 187 | .20 | 342 | 632 | 3990 |
| 29 | .10 | 56 | 86 | 240 | --- | 534 | 22 | 109 | .50 | 370 | 559 | 6310 |
| 30 | .05 | 67 | 83 | 260 | --- | 479 | 19 | 64 | 3.5 | 426 | 441 | 6250 |
| 31 | .03 | --- | 80 | 299 | --- | 446 | --- | 37 | --- | 431 | 316 | --- |
| TOTAL | 71.83 | 388.71 | 5659 | 16763 | 28382 | 14610 | 4638 | 1930 | 3785.49 | 2990.8 | 9309.67 | 18737.10 |
| MEAN | 2.32 | 13.0 | 183 | 541 | 1014 | 471 | 155 | 62.3 | 126 | 96.5 | 300 | 625 |
| MAX | 8.6 | 67 | 345 | 1210 | 1430 | 810 | 418 | 351 | 541 | 431 | 1280 | 6310 |
| MIN | .03 | .03 | 64 | 77 | 397 | 185 | 19 | 10 | .20 | 6.3 | .83 | .32 |
| CFSM | .01 | .03 | .40 | 1.19 | 2.22 | 1.03 | .34 | .14 | .28 | .21 | .66 | 1.37 |
| IN. | .01 | .03 | .46 | 1.37 | 2.32 | 1.19 | .38 | .16 | .31 | .24 | .76 | 1.53 |

CAL YR 1984 TOTAL 234053.64 MEAN 639 MAX 3710 MIN .03 CFSM 1.40 IN. 19.09
WTR YR 1985 TOTAL 107265.60 MEAN 294 MAX 6310 MIN .03 CFSM .64 IN. 8.75

## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA
(National stream-quality accounting network station)

LOCATION.--Lat 36°45'45", long 76°53'55", Southampton County, Hydrologic Unit 03010202, on right bank 0.4 mi south of Burdette, 0.5 mi upstream from Black Creek, 3.3 mi downstream from Corrowaugh Swamp, and 6.0 mi north of Franklin.
DRAINAGE AREA.--617 mi².

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1944 to current year.
REVISED RECORDS.--WSP 2104: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 1.56 ft above National Geodetic Vertical Datum of 1929.
REMARKS.--No estimated daily discharges. Records fair except those for periods of tidal effect, below 40 ft³/s, during October, November, and May to September, which are poor. Low flow reversed by tide some years. Diversion upstream from station by city of Norfolk for municipal supply most years.
AVERAGE DISCHARGE.--41 years, 640 ft³/s, 14.09 in/yr, adjusted for diversion.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s, Sept. 14, 1960, gage height, 17.14 ft, from floodmarks; minimum daily, 0.07 ft³/s, Oct. 16, 1981.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 22 ft, discharge, 21,000 ft³/s, from rating curve extended above 9,400 ft³/s.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,360 ft³/s, Sept. 30, gage height, 13.42 ft; minimum daily, 0.20 ft³/s, June 28.
CORRECTIONS.--Diversion (*), in cubic feet per second, for the 1984 water year have been corrected as shown in the following table. These figures supersede those published in the report for 1984.

OCTOBER 1983.......... 5.21
NOVEMBER 1983.........14.2
DECEMBER 1983.........30.7
JANUARY 1984..........26.3
JULY 1984............. 7.89
SEPTEMBER 1984........ 3.73

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.4 | 6.2 | 63 | 66 | 462 | 737 | 472 | 12 | 55 | 13 | 353 | 305 |
| 2 | 7.6 | 6.9 | 67 | 64 | 666 | 796 | 433 | 9.0 | 34 | 6.4 | 341 | 216 |
| 3 | 7.8 | 5.2 | 94 | 84 | 905 | 826 | 395 | 9.7 | 21 | 6.9 | 304 | 135 |
| 4 | 11 | 3.8 | 138 | 318 | 1120 | 801 | 355 | 13 | 13 | 5.6 | 252 | 84 |
| 5 | 12 | 5.4 | 174 | 569 | 1290 | 762 | 319 | 16 | 32 | 6.9 | 193 | 58 |
| 6 | 11 | 6.2 | 231 | 730 | 1410 | 699 | 296 | 16 | 104 | 8.8 | 146 | 43 |
| 7 | 9.2 | 3.7 | 275 | 849 | 1480 | 636 | 277 | 13 | 246 | 7.1 | 105 | 30 |
| 8 | 8.3 | 3.0 | 303 | 961 | 1460 | 585 | 240 | 8.0 | 391 | 2.7 | 82 | 21 |
| 9 | 7.5 | 2.6 | 337 | 1080 | 1400 | 545 | 212 | 6.4 | 487 | 1.0 | 61 | 16 |
| 10 | 6.7 | 5.2 | 358 | 1120 | 1320 | 501 | 192 | 5.7 | 498 | 3.2 | 43 | 13 |
| 11 | 6.0 | 16 | 355 | 1110 | 1180 | 456 | 181 | 4.7 | 469 | 89 | 28 | 10 |
| 12 | 5.5 | 14 | 344 | 1070 | 1160 | 428 | 170 | 4.2 | 388 | 120 | 16 | 7.0 |
| 13 | 5.1 | 5.8 | 324 | 993 | 1360 | 396 | 157 | 3.6 | 296 | 61 | 11 | 5.1 |
| 14 | 4.7 | 4.1 | 306 | 902 | 1460 | 352 | 144 | 2.4 | 219 | 24 | 6.2 | 4.0 |
| 15 | 4.4 | 3.9 | 283 | 793 | 1460 | 313 | 137 | 1.9 | 119 | 9.0 | 2.0 | 3.2 |
| 16 | 4.4 | 5.2 | 260 | 691 | 1420 | 283 | 137 | 4.4 | 73 | 12 | .80 | 2.3 |
| 17 | 4.3 | 3.2 | 238 | 628 | 1340 | 261 | 259 | 6.4 | 49 | 152 | .53 | 2.3 |
| 18 | 4.2 | 2.7 | 213 | 594 | 1200 | 243 | 277 | 4.4 | 37 | 178 | 2.5 | 2.0 |
| 19 | 4.3 | 3.4 | 195 | 567 | 1070 | 224 | 198 | 2.6 | 172 | 105 | 155 | 2.0 |
| 20 | 4.4 | 4.4 | 178 | 538 | 980 | 210 | 148 | 3.8 | 284 | 69 | 360 | 2.7 |
| 21 | 4.4 | 4.1 | 161 | 469 | 926 | 197 | 113 | 5.4 | 155 | 49 | 276 | 3.3 |
| 22 | 4.3 | 3.9 | 147 | 427 | 867 | 204 | 92 | 3.3 | 76 | 37 | 311 | 3.5 |
| 23 | 4.2 | 3.8 | 132 | 389 | 777 | 357 | 79 | 4.1 | 49 | 20 | 683 | 4.5 |
| 24 | 4.1 | 3.8 | 118 | 356 | 690 | 518 | 70 | 13 | 26 | 13 | 879 | 5.0 |
| 25 | 4.2 | 5.7 | 110 | 343 | 617 | 641 | 60 | 64 | 15 | 15 | 752 | 6.2 |
| 26 | 10 | 12 | 107 | 338 | 609 | 723 | 46 | 239 | 6.2 | 29 | 560 | 11 |
| 27 | 13 | 19 | 103 | 320 | 674 | 735 | 35 | 356 | 1.8 | 67 | 431 | 1730 |
| 28 | 14 | 30 | 93 | 327 | 710 | 708 | 27 | 324 | .20 | 181 | 464 | 3600 |
| 29 | 16 | 47 | 83 | 324 | --- | 643 | 21 | 226 | 1.8 | 264 | 496 | 4640 |
| 30 | 14 | 53 | 76 | 312 | --- | 577 | 16 | 132 | 9.0 | 302 | 462 | 5310 |
| 31 | 9.7 | --- | 70 | 333 | --- | 517 | --- | 79 | --- | 331 | 391 | --- |
| TOTAL | 233.7 | 293.2 | 5936 | 17665 | 30013 | 15874 | 5558 | 1593.0 | 4327.00 | 2188.6 | 8167.03 | 16275.1 |
| MEAN | 7.54 | 9.77 | 191 | 570 | 1072 | 512 | 185 | 51.4 | 144 | 70.6 | 263 | 543 |
| MAX | 16 | 53 | 358 | 1120 | 1480 | 826 | 472 | 356 | 498 | 331 | 879 | 5310 |
| MIN | 4.1 | 2.6 | 63 | 64 | 462 | 197 | 16 | 1.9 | .20 | 1.0 | .53 | 2.0 |
| (*) | 0 | 0 | 27.2 | 33.0 | 33.3 | 32.7 | 29.1 | 18.9 | 16.3 | 16.5 | 17.5 | 2.6 |
| MEAN† | 7.54 | 9.77 | 218 | 603 | 1105 | 545 | 214 | 70.3 | 160 | 87.1 | 280 | 546 |
| CFSM† | .01 | .02 | .35 | .98 | 1.79 | .88 | .35 | .11 | .26 | .14 | .45 | .88 |
| IN.† | .01 | .02 | .41 | 1.13 | 1.86 | 1.02 | .39 | .13 | .29 | .16 | .52 | .99 |

CAL YR 1984 TOTAL 282950.9 MEAN 773 MAX 3410 MIN 2.6 MEAN† 779 CFSM† 1.26 IN.† 17.15
WTR YR 1985 TOTAL 108123.63 MEAN 296 MAX 5310 MIN .20 MEAN† 315 CFSM† .51 IN.† 6.93

* Average diversion, in cubic feet per second, by city of Norfolk.
† Adjusted for diversion.

## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

### WATER-QUALITY RECORDS

**LOCATION.**--Samples taken at bridge 2.0 mi upstream from discharge station.

**PERIOD OF RECORD.**--Water years 1947, 1952, 1975 to current year.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | SPECIFIC CONDUCTANCE LAB (US/CM) | PH (STANDARD UNITS) | PH LAB (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | TURBIDITY (NTU) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 12:00 | 4.2 | 139 | 139 | 6.9 | 6.9 | 9.0 | 764 | 5.5 | 5.8 | 50 |
| FEB 19... | 11:15 | 1060 | 84 | 85 | 6.7 | 6.4 | 4.0 | 760 | 6.5 | 12.8 | 98 |
| MAY 22... | 09:30 | 3.8 | 130 | 128 | 7.3 | 6.9 | 22.5 | 754 | 3.3 | 7.3 | 85 |
| AUG 21... | 09:30 | 281 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 03... | 09:45 | 142 | 87 | 84 | 6.1 | 7.0 | 24.0 | 772 | 2.0 | 4.7 | 55 |

| DATE | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) | HARDNESS NONCARBONATE (MG/L AS CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY LAB (MG/L AS CACO3) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 230 | 670 | 56 | 56 | 18 | 2.6 | 4.9 | 2.3 | 40 | 29 | 16 |
| FEB 19... | 72 | 70 | 27 | 27 | 8.5 | 1.5 | 3.6 | 1.6 | 10 | 10 | 13 |
| MAY 22... | K5 | K3 | 52 | 52 | 17 | 2.4 | 5.0 | 2.4 | 41 | 43 | 5.7 |
| AUG 21... | 25 | 160 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 03... | -- | -- | 26 | 26 | 6.9 | 2.2 | 5.6 | 2.0 | 27 | 18 | 5.7 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 12 | <0.1 | 6.8 | 92 | 82 | 0.16 | <0.01 | 0.7 | <0.01 | <0.01 | 0.01 |
| FEB 19... | 9.9 | <0.1 | 6.0 | 70 | 51 | 0.40 | 0.02 | 0.7 | <0.01 | <0.01 | <0.01 |
| MAY 22... | 11 | 0.1 | 2.7 | 80 | 73 | <0.10 | 0.10 | 0.8 | 0.02 | <0.01 | <0.01 |
| AUG 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 03... | 6.7 | <0.1 | 14 | 75 | 55 | 0.18 | 0.07 | 0.3 | 0.06 | 0.06 | 0.03 |

## 02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | ALUMINUM, DISSOLVED (UG/L AS AL) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | BERYLLIUM, DISSOLVED (UG/L AS BE) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) | LEAD, DISSOLVED (UG/L AS PB) | LITHIUM DISSOLVED (UG/L AS LI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 50 | <1 | 63 | <0.5 | 1 | 1 | <3 | <1 | 1200 | 4 | <4 |
| FEB 19... | 120 | <1 | 38 | <0.5 | <1 | <1 | <3 | 1 | 240 | <1 | 11 |
| MAY 22... | 60 | <1 | 63 | <0.5 | <1 | <1 | <3 | 2 | 540 | 7 | <4 |
| AUG 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 03... | 10 | <1 | 41 | <0.5 | <1 | 1 | <3 | 3 | 620 | 1 | 11 |

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | MOLYBDENUM, DISSOLVED (UG/L AS MO) | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | STRONTIUM, DISSOLVED (UG/L AS SR) | VANADIUM, DISSOLVED (UG/L AS V) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 20... | 200 | <0.1 | <10 | 1 | <1 | <1 | 99 | <6 | <3 | 5 | 88 |
| FEB 19... | 12 | 0.2 | <10 | <1 | <1 | 1 | 45 | <6 | 15 | 5 | 88 |
| MAY 22... | 130 | 0.1 | <10 | 2 | <1 | <1 | 100 | <6 | 25 | 7 | 94 |
| AUG 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 03... | 82 | <0.1 | <10 | 2 | <1 | <1 | 62 | <6 | 9 | 12 | 88 |

## 02051000 NORTH MEHERRIN RIVER NEAR LUNENBURG, VA

**LOCATION.**--Lat 36°59'53", long 78°21'03", Lunenburg County, Hydrologic Unit 03010204, on right bank at upstream side of bridge on State Highway 40, 0.5 mi downstream from Tusekiah Creek, 4.6 mi upstream from Juniper Creek, and 5.2 mi northwest of Lunenburg.

**DRAINAGE AREA.**--55.6 mi².

**PERIOD OF RECORD.**--August 1946 to September 1980, October 1981 to current year.

**REVISED RECORDS.**--WSP 1303: 1947(M), 1949(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 333.7 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 5, 1951, nonrecording gage at same site and datum. July 5, 1951, to July 11, 1980, water-stage recorder at site 20 ft downstream at same datum.

**REMARKS.**--Estimated daily discharges: Nov. 28, 29, Dec. 6, Jan. 2-9, 16, 17, Jan. 22 to Feb. 7, and Feb. 11-17. Records good except those for periods of doubtful gage-height record, Nov. 28, 29, Dec. 6, Jan. 2-9, Jan. 31 to Feb. 5, and Feb. 12-17, and periods with ice effect, Jan. 16, 17, 22-30 and Feb. 6, 7, 11, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--38 years, 53.4 ft³/s, 13.04 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 14,400 ft³/s, Oct. 23, 1971, gage height, 28.30 ft, from rating curve extended above 1,700 ft³/s on basis of slope-area measurement of peak flow; no flow Sept. 5-21, Oct. 8-14, 1954.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1940 reached a stage of 48 ft, from information by local resident.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,200 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 4 | Unknown | a720 | Unknown | Feb. 1 | Unknown | *a780 | Unknown |

a Daily mean discharge; actual peak is known to be greater than value shown.

Minimum discharge, 2.5 ft³/s, July 22-23, gage height, 0.55 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 44 | 12 | 29 | 24 | 780 | 41 | 31 | 13 | 11 | 7.5 | 5.8 | 22 |
| 2 | 18 | 11 | 24 | 40 | 450 | 39 | 26 | 13 | 10 | 6.8 | 11 | 16 |
| 3 | 11 | 11 | 38 | 100 | 280 | 36 | 24 | 20 | 9.2 | 6.8 | 6.8 | 13 |
| 4 | 8.9 | 10 | 34 | 720 | 180 | 33 | 22 | 18 | 9.0 | 5.8 | 4.9 | 12 |
| 5 | 8.2 | 15 | 30 | 300 | 105 | 34 | 23 | 15 | 9.8 | 6.0 | 4.2 | 10 |
| 6 | 7.5 | 16 | 254 | 150 | 65 | 31 | 22 | 14 | 12 | 5.4 | 3.8 | 9.0 |
| 7 | 7.3 | 13 | 61 | 85 | 56 | 28 | 21 | 13 | 11 | 5.2 | 3.8 | 8.2 |
| 8 | 7.7 | 11 | 40 | 65 | 51 | 28 | 21 | 12 | 10 | 4.6 | 8.0 | 7.5 |
| 9 | 7.7 | 11 | 33 | 50 | 45 | 31 | 20 | 11 | 9.5 | 4.0 | 8.0 | 7.0 |
| 10 | 7.5 | 11 | 28 | 37 | 41 | 30 | 20 | 11 | 8.8 | 3.7 | 5.2 | 6.5 |
| 11 | 7.5 | 14 | 28 | 36 | 37 | 28 | 20 | 12 | 8.5 | 10 | 4.6 | 6.2 |
| 12 | 7.7 | 19 | 26 | 35 | 450 | 28 | 20 | 11 | 8.0 | 7.5 | 4.0 | 6.0 |
| 13 | 7.7 | 14 | 24 | 32 | 260 | 26 | 20 | 16 | 9.2 | 5.8 | 3.8 | 5.5 |
| 14 | 8.4 | 13 | 22 | 31 | 140 | 26 | 20 | 14 | 8.0 | 4.9 | 3.6 | 5.4 |
| 15 | 8.4 | 11 | 22 | 29 | 80 | 26 | 22 | 12 | 7.0 | 4.4 | 3.4 | 5.4 |
| 16 | 8.4 | 11 | 21 | 26 | 60 | 24 | 22 | 11 | 8.8 | 4.2 | 3.1 | 5.4 |
| 17 | 8.4 | 11 | 21 | 25 | 48 | 24 | 20 | 12 | 10 | 3.6 | 3.1 | 5.5 |
| 18 | 8.4 | 11 | 21 | 34 | 42 | 24 | 18 | 14 | 8.5 | 3.3 | 445 | 5.4 |
| 19 | 8.7 | 59 | 21 | 40 | 39 | 23 | 18 | 12 | 7.0 | 3.0 | 119 | 5.4 |
| 20 | 8.9 | 38 | 21 | 35 | 38 | 23 | 18 | 10 | 6.0 | 2.9 | 270 | 5.2 |
| 21 | 9.2 | 22 | 22 | 29 | 36 | 22 | 17 | 11 | 5.2 | 2.7 | 444 | 5.2 |
| 22 | 18 | 18 | 29 | 25 | 35 | 28 | 16 | 13 | 4.8 | 2.6 | 186 | 6.0 |
| 23 | 28 | 17 | 28 | 21 | 34 | 75 | 15 | 155 | 4.6 | 3.7 | 36 | 11 |
| 24 | 28 | 16 | 23 | 21 | 34 | 50 | 15 | 115 | 4.4 | 3.5 | 21 | 9.2 |
| 25 | 21 | 15 | 22 | 19 | 34 | 45 | 15 | 49 | 4.3 | 9.6 | 18 | 7.5 |
| 26 | 16 | 15 | 21 | 19 | 89 | 35 | 15 | 24 | 3.8 | 14 | 28 | 6.8 |
| 27 | 13 | 15 | 20 | 22 | 61 | 31 | 14 | 17 | 3.6 | 7.5 | 67 | 24 |
| 28 | 12 | 178 | 20 | 23 | 46 | 29 | 14 | 14 | 3.5 | 10 | 23 | 12 |
| 29 | 15 | 125 | 21 | 25 | --- | 28 | 15 | 13 | 17 | 12 | 15 | 8.2 |
| 30 | 15 | 39 | 21 | 26 | --- | 56 | 14 | 12 | 14 | 9.2 | 154 | 6.5 |
| 31 | 13 | --- | 23 | 80 | --- | 36 | --- | 12 | --- | 6.2 | 43 | --- |
| TOTAL | 398.5 | 782 | 1048 | 2204 | 3616 | 1018 | 578 | 699 | 246.5 | 186.4 | 1956.1 | 263.0 |
| MEAN | 12.9 | 26.1 | 33.8 | 71.1 | 129 | 32.8 | 19.3 | 22.5 | 8.22 | 6.01 | 63.1 | 8.77 |
| MAX | 44 | 178 | 254 | 720 | 780 | 75 | 31 | 155 | 17 | 14 | 445 | 24 |
| MIN | 7.3 | 10 | 20 | 19 | 34 | 22 | 14 | 10 | 3.5 | 2.6 | 3.1 | 5.2 |
| CFSM | .23 | .47 | .61 | 1.28 | 2.32 | .59 | .35 | .40 | .15 | .11 | 1.13 | .16 |
| IN. | .27 | .52 | .70 | 1.47 | 2.42 | .68 | .39 | .47 | .16 | .12 | 1.31 | .18 |

CAL YR 1984 TOTAL 23110.1 MEAN 63.1 MAX 1600 MIN 5.5 CFSM 1.13 IN. 15.46
WTR YR 1985 TOTAL 12995.5 MEAN 35.6 MAX 780 MIN 2.6 CFSM .64 IN. 8.69

## 02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA

LOCATION.--Lat 36°43'00", long 77°49'55", Brunswick County, Hydrologic Unit 03010204, on right bank 50 ft upstream from Gholson Bridge on State Highway 715, 0.6 mi upstream from Allen Creek, and 3.0 mi southeast of Lawrenceville.

DRAINAGE AREA.--552 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1932(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.56 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1931, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 500 ft³/s, 12.30 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft³/s, Aug. 17, 1940, gage height, 42.0 ft, from floodmark, from rating curve extended above 13,000 ft³/s on basis of velocity-area studies and records for Nottoway River near Stony Creek; minimum, 4.2 ft³/s, Oct. 7, 8, 1954; minimum gage height, 0.72 ft, Sept. 23, 24, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 5 | 1600 | *8,070 | *21.71 | Feb. 3 | 1330 | 5,910 | 18.24 |

Minimum discharge, 34 ft³/s, July 24; minimum gage height, 1.59 ft, Sept. 19-20, 21, 22.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 159 | 158 | 395 | 212 | 1550 | 535 | 332 | 164 | 141 | 96 | 105 | 274 |
| 2 | 279 | 146 | 287 | 230 | 4690 | 477 | 302 | 159 | 133 | 162 | 153 | 169 |
| 3 | 269 | 139 | 605 | 1620 | 5720 | 449 | 284 | 259 | 127 | 125 | 135 | 115 |
| 4 | 176 | 134 | 636 | 5250 | 2190 | 419 | 272 | 308 | 120 | 101 | 118 | 100 |
| 5 | 142 | 227 | 462 | 7560 | 944 | 403 | 267 | 243 | 116 | 92 | 95 | 86 |
| 6 | 127 | 223 | 1140 | 5140 | 800 | 389 | 261 | 203 | 180 | 87 | 80 | 78 |
| 7 | 119 | 185 | 1290 | 1050 | 799 | 364 | 251 | 183 | 226 | 88 | 74 | 72 |
| 8 | 116 | 164 | 610 | 749 | 724 | 348 | 246 | 165 | 168 | 83 | 70 | 67 |
| 9 | 114 | 151 | 435 | 589 | 577 | 350 | 242 | 154 | 147 | 78 | 67 | 64 |
| 10 | 114 | 145 | 366 | 488 | 506 | 351 | 238 | 149 | 131 | 72 | 68 | 61 |
| 11 | 112 | 167 | 330 | 456 | 485 | 345 | 236 | 145 | 122 | 93 | 99 | 57 |
| 12 | 110 | 196 | 305 | 441 | 1620 | 336 | 237 | 145 | 121 | 99 | 80 | 53 |
| 13 | 107 | 177 | 287 | 424 | 3710 | 328 | 238 | 150 | 195 | 118 | 67 | 50 |
| 14 | 106 | 174 | 270 | 398 | 1370 | 318 | 244 | 161 | 211 | 120 | 59 | 48 |
| 15 | 104 | 158 | 257 | 378 | 848 | 312 | 254 | 188 | 150 | 102 | 53 | 46 |
| 16 | 105 | 147 | 247 | 353 | 679 | 304 | 258 | 153 | 124 | 84 | 48 | 46 |
| 17 | 106 | 142 | 243 | 342 | 584 | 300 | 289 | 148 | 121 | 70 | 63 | 47 |
| 18 | 109 | 138 | 240 | 386 | 533 | 299 | 346 | 172 | 116 | 58 | 155 | 44 |
| 19 | 110 | 168 | 241 | 400 | 496 | 289 | 276 | 193 | 111 | 50 | 1310 | 43 |
| 20 | 109 | 264 | 240 | 409 | 471 | 281 | 246 | 166 | 102 | 44 | 798 | 44 |
| 21 | 110 | 349 | 238 | 290 | 448 | 278 | 234 | 142 | 95 | 42 | 737 | 44 |
| 22 | 111 | 239 | 235 | 260 | 427 | 290 | 219 | 132 | 86 | 40 | 1250 | 44 |
| 23 | 116 | 194 | 238 | 414 | 417 | 334 | 207 | 195 | 83 | 45 | 759 | 50 |
| 24 | 152 | 178 | 245 | 399 | 412 | 494 | 198 | 628 | 79 | 36 | 309 | 61 |
| 25 | 249 | 173 | 239 | 382 | 409 | 551 | 194 | 1070 | 78 | 48 | 191 | 56 |
| 26 | 197 | 167 | 224 | 371 | 526 | 462 | 188 | 489 | 72 | 179 | 155 | 58 |
| 27 | 175 | 163 | 215 | 353 | 894 | 386 | 181 | 305 | 66 | 212 | 319 | 141 |
| 28 | 154 | 179 | 212 | 334 | 692 | 350 | 178 | 219 | 65 | 277 | 175 | 152 |
| 29 | 146 | 503 | 207 | 335 | --- | 335 | 175 | 180 | 65 | 239 | 173 | 131 |
| 30 | 152 | 732 | 210 | 331 | --- | 325 | 169 | 161 | 78 | 142 | 128 | 93 |
| 31 | 166 | --- | 209 | 404 | --- | 324 | --- | 149 | --- | 117 | 215 | --- |
| TOTAL | 4421 | 6280 | 11358 | 30748 | 33521 | 11326 | 7262 | 7278 | 3629 | 3199 | 8108 | 2394 |
| MEAN | 143 | 209 | 366 | 992 | 1197 | 365 | 242 | 235 | 121 | 103 | 262 | 79.8 |
| MAX | 279 | 732 | 1290 | 7560 | 5720 | 551 | 346 | 1070 | 226 | 277 | 1310 | 274 |
| MIN | 104 | 134 | 207 | 212 | 409 | 278 | 169 | 132 | 65 | 36 | 48 | 43 |
| CFSM | .26 | .38 | .66 | 1.80 | 2.17 | .66 | .44 | .43 | .22 | .19 | .47 | .14 |
| IN. | .30 | .42 | .77 | 2.07 | 2.26 | .76 | .49 | .49 | .24 | .22 | .55 | .16 |

|  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 250024 | MEAN | 683 | MAX | 9940 | MIN | 93 | CFSM 1.24 | IN. 16.85 |
| WTR YR 1985 | TOTAL | 129524 | MEAN | 355 | MAX | 7560 | MIN | 36 | CFSM .64 | IN. 8.73 |

## 02051600 GREAT CREEK NEAR COCHRAN, VA

**LOCATION.**--Lat 36°48'46", long 77°55'19", Brunswick County, Hydrologic Unit 03010204, on left bank at upstream side of bridge on State Highway 763, 1.4 mi southwest of Cochran, and 9.5 mi upstream from Roses Creek.

**DRAINAGE AREA.**--30.7 $mi^2$.

**PERIOD OF RECORD.**--May 1958 to current year.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 215.72 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 12, 21-29 and Feb. 6, 7. Records good except those for periods with ice effect, Jan. 12, 21-29 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--27 years, 30.3 $ft^3/s$, 13.40 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 7,100 $ft^3/s$, Oct. 6, 1972, gage height, 16.65 ft, from rating curve extended above 3,700 $ft^3/s$ on basis of contracted-opening measurements at gage heights 12.08 ft, 14.57 ft, and 16.65 ft; minimum, 0.10 $ft^3/s$, Oct. 11, 12, 1965, Sept. 23, 1968; minimum gage height, 1.50 ft, Aug. 19, 1965.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 300 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 4 | 0730 | *545 | *7.77 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 1.2 $ft^3/s$, July 21-22, Sept. 18, 19-21, 22, gage height, 1.73 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22 | 6.8 | 16 | 13 | 114 | 26 | 18 | 9.1 | 6.1 | 6.1 | 8.3 | 5.8 |
| 2 | 17 | 6.5 | 13 | 16 | 237 | 25 | 16 | 9.0 | 5.3 | 7.5 | 15 | 4.5 |
| 3 | 9.6 | 6.2 | 61 | 179 | 137 | 23 | 16 | 23 | 4.7 | 5.4 | 9.6 | 3.8 |
| 4 | 7.5 | 7.2 | 32 | 445 | 69 | 22 | 15 | 20 | 4.6 | 3.9 | 5.7 | 3.4 |
| 5 | 6.6 | 30 | 24 | 172 | 55 | 23 | 15 | 14 | 4.9 | 3.7 | 4.3 | 3.1 |
| 6 | 6.0 | 15 | 90 | 75 | 47 | 21 | 15 | 12 | 12 | 3.3 | 3.7 | 2.8 |
| 7 | 6.0 | 9.6 | 42 | 52 | 40 | 19 | 14 | 11 | 8.7 | 3.6 | 3.6 | 2.6 |
| 8 | 6.0 | 7.6 | 25 | 40 | 36 | 20 | 14 | 9.6 | 7.3 | 3.5 | 3.5 | 2.5 |
| 9 | 6.0 | 7.1 | 22 | 31 | 31 | 21 | 14 | 8.9 | 9.7 | 2.6 | 3.4 | 2.3 |
| 10 | 5.8 | 7.3 | 19 | 27 | 29 | 19 | 14 | 8.8 | 7.7 | 2.3 | 3.3 | 2.2 |
| 11 | 5.6 | 14 | 19 | 26 | 28 | 19 | 14 | 8.7 | 6.3 | 3.7 | 3.1 | 1.9 |
| 12 | 5.6 | 14 | 17 | 25 | 194 | 20 | 14 | 8.5 | 6.8 | 4.4 | 2.7 | 1.8 |
| 13 | 5.5 | 9.9 | 17 | 23 | 137 | 18 | 14 | 8.6 | 19 | 9.0 | 2.5 | 1.5 |
| 14 | 5.4 | 8.3 | 16 | 22 | 65 | 18 | 15 | 8.7 | 9.4 | 5.0 | 2.3 | 1.4 |
| 15 | 5.4 | 7.8 | 15 | 21 | 49 | 18 | 15 | 8.1 | 6.1 | 3.3 | 1.9 | 1.4 |
| 16 | 5.4 | 8.2 | 15 | 19 | 40 | 17 | 15 | 7.6 | 5.8 | 2.6 | 1.7 | 1.3 |
| 17 | 5.5 | 8.0 | 15 | 22 | 35 | 18 | 23 | 11 | 6.5 | 2.2 | 1.7 | 1.3 |
| 18 | 5.7 | 6.7 | 15 | 28 | 31 | 18 | 17 | 13 | 5.4 | 1.9 | 61 | 1.3 |
| 19 | 5.7 | 17 | 16 | 25 | 29 | 17 | 15 | 10 | 4.4 | 1.7 | 66 | 1.2 |
| 20 | 5.7 | 23 | 15 | 23 | 28 | 17 | 15 | 8.4 | 3.7 | 1.5 | 17 | 1.2 |
| 21 | 5.7 | 13 | 15 | 23 | 26 | 16 | 14 | 8.3 | 3.3 | 1.3 | 30 | 1.2 |
| 22 | 5.6 | 10 | 15 | 21 | 25 | 18 | 13 | 9.9 | 3.1 | 1.3 | 15 | 1.4 |
| 23 | 6.0 | 9.7 | 16 | 20 | 24 | 26 | 12 | 9.9 | 3.0 | 6.6 | 9.2 | 2.3 |
| 24 | 11 | 9.5 | 14 | 19 | 24 | 26 | 12 | 33 | 2.8 | 2.9 | 6.9 | 2.6 |
| 25 | 9.6 | 7.6 | 15 | 18 | 24 | 30 | 12 | 34 | 2.6 | 11 | 6.5 | 2.4 |
| 26 | 7.5 | 7.9 | 14 | 18 | 55 | 21 | 11 | 14 | 2.3 | 34 | 6.9 | 2.6 |
| 27 | 6.9 | 7.8 | 13 | 18 | 43 | 19 | 11 | 9.7 | 2.0 | 23 | 6.8 | 23 |
| 28 | 6.6 | 18 | 13 | 19 | 29 | 19 | 10 | 7.8 | 2.0 | 35 | 5.9 | 14 |
| 29 | 6.7 | 55 | 14 | 20 | --- | 18 | 10 | 6.9 | 2.2 | 16 | 4.9 | 5.1 |
| 30 | 7.1 | 21 | 14 | 21 | --- | 20 | 9.4 | 6.9 | 8.1 | 10 | 4.6 | 3.4 |
| 31 | 7.1 | --- | 13 | 43 | --- | 18 | --- | 6.5 | --- | 7.0 | 8.0 | --- |
| TOTAL | 227.8 | 379.7 | 660 | 1524 | 1681 | 630 | 422.4 | 364.9 | 175.8 | 225.3 | 325.0 | 105.3 |
| MEAN | 7.35 | 12.7 | 21.3 | 49.2 | 60.0 | 20.3 | 14.1 | 11.8 | 5.86 | 7.27 | 10.5 | 3.51 |
| MAX | 22 | 55 | 90 | 445 | 237 | 30 | 23 | 34 | 19 | 35 | 66 | 23 |
| MIN | 5.4 | 6.2 | 13 | 13 | 24 | 16 | 9.4 | 6.5 | 2.0 | 1.3 | 1.7 | 1.2 |
| CFSM | .24 | .41 | .69 | 1.60 | 1.95 | .66 | .46 | .38 | .19 | .24 | .34 | .11 |
| IN. | .28 | .46 | .80 | 1.85 | 2.04 | .76 | .51 | .44 | .21 | .27 | .39 | .13 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 15107.6 | MEAN | 41.3 | MAX | 1980 | MIN | 5.3 | CFSM 1.35 | IN. | 18.31 |
| WTR YR 1985 | TOTAL | 6721.2 | MEAN | 18.4 | MAX | 445 | MIN | 1.2 | CFSM .60 | IN. | 8.14 |

## 02052000 MEHERRIN RIVER AT EMPORIA, VA
(National stream-quality accounting network station)

**LOCATION.**--Lat 36°41'24", long 77°32'27", Emporia City, Hydrologic Unit 03010204, on left bank at downstream side of bridge on U.S. Highway 301 and 1.2 mi upstream from Falling Run.

**DRAINAGE AREA.**--747 mi$^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--January 1951 to current year.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 67.17 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

**REMARKS.**--Estimated daily discharges: Jan. 23-30. Records good except those for period with ice effect, Jan. 23-30, which are fair. Prior to November 1965, low and medium flow regulated by powerplant 0.8 mi upstream from station.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--34 years, 694 ft$^3$/s, 12.62 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 21,100 ft$^3$/s, Oct. 8, 1972, gage height, 27.38 ft; minimum, 5.0 ft$^3$/s, Nov. 11, 1954, gage height, 1.00 ft; minimum daily, 8.0 ft$^3$/s, Nov. 8-10, 1954.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1940 reached a stage of 31.5 ft, from floodmarks, discharge, about 40,000 ft$^3$/s, from rating curve extended above 18,000 ft$^3$/s on basis of record for station near Lawrenceville.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 6,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 6 | 0930 | *8,570 | *20.84 | Feb. 4 | 0130 | 6,710 | 19.01 |

Minimum discharge, 41 ft$^3$/s, July 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 150 | 160 | 584 | 214 | 1420 | 819 | 411 | 210 | 183 | 134 | 144 | 288 |
| 2 | 224 | 155 | 339 | 226 | 4490 | 685 | 384 | 207 | 174 | 181 | 168 | 238 |
| 3 | 262 | 148 | 531 | 838 | 6410 | 618 | 355 | 275 | 166 | 194 | 171 | 176 |
| 4 | 200 | 146 | 944 | 4990 | 5690 | 573 | 338 | 399 | 159 | 161 | 149 | 147 |
| 5 | 163 | 166 | 666 | 7420 | 2180 | 543 | 331 | 333 | 157 | 130 | 126 | 127 |
| 6 | 149 | 232 | 948 | 8320 | 1330 | 513 | 330 | 269 | 168 | 113 | 104 | 114 |
| 7 | 140 | 194 | 1770 | 4210 | 1200 | 482 | 313 | 235 | 241 | 106 | 89 | 104 |
| 8 | 136 | 171 | 1040 | 1440 | 1110 | 461 | 303 | 217 | 218 | 98 | 82 | 98 |
| 9 | 134 | 161 | 581 | 932 | 898 | 454 | 297 | 203 | 200 | 85 | 80 | 92 |
| 10 | 132 | 156 | 432 | 729 | 741 | 453 | 289 | 200 | 179 | 98 | 78 | 86 |
| 11 | 132 | 160 | 370 | 642 | 673 | 446 | 291 | 195 | 167 | 146 | 81 | 83 |
| 12 | 129 | 192 | 331 | 606 | 1470 | 440 | 290 | 196 | 163 | 135 | 105 | 78 |
| 13 | 127 | 187 | 307 | 566 | 4450 | 421 | 293 | 198 | 199 | 146 | 87 | 72 |
| 14 | 124 | 176 | 285 | 528 | 3810 | 407 | 298 | 195 | 247 | 133 | 72 | 67 |
| 15 | 120 | 170 | 270 | 485 | 1590 | 396 | 311 | 214 | 214 | 121 | 61 | 66 |
| 16 | 120 | 163 | 259 | 449 | 1100 | 384 | 318 | 209 | 183 | 119 | 54 | 64 |
| 17 | 120 | 158 | 253 | 435 | 899 | 380 | 328 | 193 | 169 | 104 | 52 | 63 |
| 18 | 122 | 157 | 249 | 497 | 783 | 374 | 386 | 199 | 166 | 70 | 127 | 64 |
| 19 | 124 | 176 | 251 | 532 | 715 | 362 | 365 | 219 | 155 | 59 | 823 | 61 |
| 20 | 124 | 232 | 254 | 523 | 666 | 353 | 307 | 212 | 146 | 54 | 1650 | 59 |
| 21 | 125 | 309 | 248 | 414 | 622 | 346 | 285 | 192 | 131 | 48 | 783 | 63 |
| 22 | 126 | 285 | 245 | 286 | 584 | 371 | 269 | 176 | 121 | 44 | 1440 | 85 |
| 23 | 129 | 211 | 240 | 320 | 559 | 433 | 254 | 220 | 110 | 41 | 1330 | 83 |
| 24 | 132 | 189 | 242 | 350 | 553 | 529 | 247 | 403 | 106 | 48 | 486 | 80 |
| 25 | 185 | 182 | 244 | 355 | 543 | 814 | 241 | 1290 | 101 | 79 | 273 | 94 |
| 26 | 189 | 181 | 232 | 360 | 775 | 690 | 235 | 803 | 96 | 142 | 204 | 112 |
| 27 | 171 | 177 | 221 | 365 | 1150 | 555 | 229 | 409 | 87 | 233 | 280 | 499 |
| 28 | 160 | 191 | 220 | 370 | 1150 | 473 | 225 | 277 | 80 | 228 | 244 | 290 |
| 29 | 158 | 377 | 215 | 385 | --- | 437 | 221 | 224 | 90 | 329 | 203 | 191 |
| 30 | 151 | 832 | 215 | 400 | --- | 415 | 215 | 201 | 110 | 190 | 179 | 159 |
| 31 | 157 | --- | 216 | 497 | --- | 403 | --- | 191 | --- | 152 | 170 | --- |
| TOTAL | 4615 | 6394 | 13202 | 38684 | 47561 | 15030 | 8959 | 8964 | 4686 | 3921 | 9895 | 3803 |
| MEAN | 149 | 213 | 426 | 1248 | 1699 | 485 | 299 | 289 | 156 | 126 | 319 | 127 |
| MAX | 262 | 832 | 1770 | 8320 | 6410 | 819 | 411 | 1290 | 247 | 329 | 1650 | 499 |
| MIN | 120 | 146 | 215 | 214 | 543 | 346 | 215 | 176 | 80 | 41 | 52 | 59 |
| CFSM | .20 | .29 | .57 | 1.67 | 2.27 | .65 | .40 | .39 | .21 | .17 | .43 | .17 |
| IN. | .23 | .32 | .66 | 1.93 | 2.37 | .75 | .45 | .45 | .23 | .20 | .49 | .19 |

CAL YR 1984 TOTAL 335737 MEAN 917 MAX 12600 MIN 118 CFSM 1.23 IN. 16.72
WTR YR 1985 TOTAL 165714 MEAN 454 MAX 8320 MIN 41 CFSM .61 IN. 8.25

## 02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to September 1971, October 1972 to September 1978.
WATER TEMPERATURE: April 1968 to September 1971, October 1972 to September 1978.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 11:00 | 294 | 83 | 84 | 7.2 | 7.5 | 6.0 | 770 | 4.3 | 13.0 | 103 |
| FEB 19... | 15:30 | 705 | 62 | 63 | 7.1 | 6.9 | 4.5 | 760 | 20 | 13.3 | 103 |
| MAY 23... | 12:30 | 206 | 88 | 87 | 7.2 | 6.9 | 22.0 | 749 | 7.5 | 8.4 | 98 |
| AUG 22... | 12:30 | 1610 | 56 | 55 | 6.7 | 6.9 | 23.5 | 754 | 35 | 8.7 | 104 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | ALKA-LINITY FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 42 | 56 | 26 | 26 | 6.2 | 2.6 | 6.6 | 1.9 | 32 | 36 | 2.8 |
| FEB 19... | 110 | 33 | 17 | 17 | 4.0 | 1.8 | 4.6 | 1.3 | 17 | 18 | 6.4 |
| MAY 23... | 210 | 180 | 28 | 28 | 6.3 | 2.9 | 6.9 | 1.6 | 32 | 35 | 3.4 |
| AUG 22... | 140 | 400 | 16 | 16 | 3.9 | 1.6 | 3.7 | 2.3 | 14 | 14 | 5.8 |

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 5.4 | <0.1 | 19 | 68 | 67 | <0.10 | <0.01 | 0.4 | <0.01 | <0.01 | 0.01 |
| FEB 19... | 4.6 | <0.1 | 15 | 58 | 49 | 0.15 | 0.04 | 0.4 | <0.01 | <0.01 | 0.01 |
| MAY 23... | 5.4 | 0.1 | 17 | 62 | 65 | 0.16 | 0.09 | 0.4 | 0.02 | <0.01 | <0.01 |
| AUG 22... | 3.5 | 0.1 | 12 | 51 | 42 | 0.26 | 0.12 | 0.9 | 0.07 | 0.04 | 0.02 |

## 02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | ALUMINUM, DISSOLVED (UG/L AS AL) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | BERYLLIUM, DISSOLVED (UG/L AS BE) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) | LEAD, DISSOLVED (UG/L AS PB) | LITHIUM DISSOLVED (UG/L AS LI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 20 | <1 | 19 | <0.5 | <1 | 1 | <3 | 14 | 590 | 3 | <4 |
| FEB 19... | 50 | <1 | 22 | <0.5 | <1 | <1 | <3 | 1 | 220 | <1 | 12 |
| MAY 23... | 30 | <1 | 28 | <0.5 | <1 | <1 | <3 | 1 | 330 | 6 | 6 |
| AUG 22... | 80 | <1 | 25 | <0.5 | <1 | <1 | <3 | 2 | 430 | 1 | <4 |

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | MOLYBDENUM, DISSOLVED (UG/L AS MO) | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | STRONTIUM, DISSOLVED (UG/L AS SR) | VANADIUM, DISSOLVED (UG/L AS V) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 21... | 47 | <0.1 | <10 | 1 | <1 | <1 | 46 | <6 | <3 | 8 | 75 |
| FEB 19... | 31 | 0.4 | <10 | <1 | <1 | 1 | 30 | <6 | 6 | 13 | 98 |
| MAY 23... | 140 | 0.3 | <10 | 1 | <1 | <1 | 56 | <6 | 26 | 24 | 86 |
| AUG 22... | 42 | 0.2 | <10 | <1 | <1 | <1 | 32 | <6 | 6 | 38 | 94 |

## 02052500 FOUNTAINS CREEK NEAR BRINK, VA

**LOCATION.**--Lat 36°36'55", long 77°42'00", Greensville County, Hydrologic Unit 03010204, on left bank 30 ft upstream from bridge on State Highway 603, 0.3 mi downstream from Quarrel Creek, 3.6 mi west of Brink, and 10 mi southwest of Emporia.

**DRAINAGE AREA.**--65.2 mi$^2$.

**PERIOD OF RECORD.**--October 1953 to current year. Prior to October 1980, published as Fontaine Creek near Brink.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 152.59 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 21-30, Feb. 6-8, and July 6-9. Records good except those for period of no gage-height record, July 6-9, and periods with ice effect, Jan. 21-30 and Feb. 6-8, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--32 years, 68.6 ft$^3$/s, 14.29 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 16,000 ft$^3$/s, Oct. 6, 1972, gage height, 24.14 ft, from floodmark, from rating curve extended above 3,000 ft$^3$/s; no flow at times some years.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 850 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 4 | 0945 | *888 | *10.78 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 0.07 ft$^3$/s, Sept. 22.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .86 | 5.5 | 26 | 8.5 | 310 | 65 | 28 | 8.1 | 5.5 | 84 | 17 | 2.3 |
| 2 | 2.4 | 4.7 | 17 | 8.8 | 637 | 57 | 26 | 7.6 | 5.1 | 68 | 38 | 3.0 |
| 3 | 2.5 | 4.1 | 92 | 237 | 624 | 51 | 24 | 18 | 4.5 | 29 | 7.5 | 2.2 |
| 4 | 1.8 | 3.5 | 86 | 852 | 288 | 46 | 23 | 28 | 4.1 | 17 | 2.6 | 1.4 |
| 5 | 1.5 | 7.3 | 60 | 680 | 145 | 45 | 25 | 21 | 3.9 | 9.4 | 1.1 | .93 |
| 6 | 1.2 | 9.5 | 128 | 360 | 130 | 42 | 24 | 15 | 3.9 | 6.6 | .76 | 2.9 |
| 7 | .88 | 8.3 | 90 | 152 | 110 | 38 | 24 | 11 | 4.1 | 5.2 | .68 | 1.6 |
| 8 | .77 | 6.5 | 58 | 82 | 95 | 37 | 21 | 8.4 | 4.4 | 3.7 | .61 | .62 |
| 9 | .80 | 6.5 | 36 | 57 | 79 | 37 | 20 | 7.2 | 5.4 | 2.9 | .54 | .45 |
| 10 | .99 | 6.1 | 27 | 46 | 65 | 36 | 19 | 6.7 | 7.1 | 3.5 | .51 | .38 |
| 11 | .99 | 6.6 | 24 | 45 | 60 | 35 | 19 | 6.7 | 6.8 | 25 | .44 | .35 |
| 12 | .89 | 7.3 | 20 | 47 | 344 | 35 | 19 | 7.4 | 7.2 | 22 | .37 | .27 |
| 13 | .81 | 6.2 | 18 | 43 | 529 | 33 | 20 | 8.0 | 9.1 | 11 | .32 | .21 |
| 14 | .79 | 5.2 | 16 | 40 | 312 | 32 | 24 | 7.6 | 7.9 | 7.6 | .28 | .25 |
| 15 | .85 | 5.3 | 14 | 37 | 138 | 31 | 27 | 7.0 | 6.7 | 5.6 | .44 | .19 |
| 16 | .91 | 5.7 | 13 | 31 | 96 | 29 | 26 | 6.4 | 6.1 | 5.2 | .42 | .16 |
| 17 | .99 | 4.9 | 13 | 35 | 77 | 29 | 30 | 6.4 | 6.0 | 6.3 | .33 | .15 |
| 18 | .98 | 5.1 | 13 | 58 | 66 | 29 | 25 | 6.6 | 5.5 | 3.8 | .41 | .11 |
| 19 | .95 | 11 | 13 | 54 | 59 | 27 | 20 | 6.2 | 4.9 | 2.7 | 8.9 | .11 |
| 20 | 1.0 | 19 | 13 | 46 | 55 | 27 | 18 | 5.6 | 4.4 | 2.0 | 19 | .10 |
| 21 | 1.2 | 15 | 13 | 33 | 50 | 27 | 18 | 5.2 | 3.5 | 1.6 | 20 | .09 |
| 22 | 1.2 | 12 | 13 | 28 | 48 | 32 | 15 | 5.0 | 2.6 | 1.2 | 9.1 | .09 |
| 23 | 1.6 | 11 | 13 | 27 | 46 | 53 | 13 | 9.5 | 2.1 | .86 | 5.6 | .11 |
| 24 | 2.9 | 9.4 | 11 | 26 | 45 | 56 | 12 | 41 | 1.6 | 1.8 | 4.1 | .11 |
| 25 | 3.9 | 8.4 | 11 | 25 | 45 | 85 | 11 | 33 | 1.3 | 4.6 | 2.1 | .14 |
| 26 | 4.5 | 7.5 | 9.4 | 25 | 143 | 57 | 11 | 24 | .94 | 14 | 1.7 | .19 |
| 27 | 3.2 | 7.0 | 8.8 | 26 | 154 | 43 | 10 | 14 | .71 | 12 | 3.2 | 121 |
| 28 | 4.1 | 9.3 | 9.4 | 28 | 99 | 39 | 9.7 | 9.4 | .61 | 9.9 | 4.4 | 66 |
| 29 | 8.7 | 39 | 9.2 | 29 | --- | 35 | 9.3 | 7.5 | .74 | 9.3 | 2.6 | 27 |
| 30 | 9.7 | 33 | 9.0 | 33 | --- | 32 | 8.6 | 6.3 | 53 | 8.6 | 1.6 | 14 |
| 31 | 7.4 | --- | 8.6 | 83 | --- | 29 | --- | 5.8 | --- | 7.2 | 1.1 | --- |
| TOTAL | 71.26 | 289.9 | 892.4 | 3282.3 | 4849 | 1249 | 579.6 | 359.6 | 179.70 | 391.56 | 155.71 | 246.41 |
| MEAN | 2.30 | 9.66 | 28.8 | 106 | 173 | 40.3 | 19.3 | 11.6 | 5.99 | 12.6 | 5.02 | 8.21 |
| MAX | 9.7 | 39 | 128 | 852 | 637 | 85 | 30 | 41 | 53 | 84 | 38 | 121 |
| MIN | .77 | 3.5 | 8.6 | 8.5 | 45 | 27 | 8.6 | 5.0 | .61 | .86 | .28 | .09 |
| CFSM | .04 | .15 | .44 | 1.63 | 2.65 | .62 | .30 | .18 | .09 | .19 | .08 | .13 |
| IN. | .04 | .17 | .51 | 1.87 | 2.77 | .71 | .33 | .21 | .10 | .22 | .09 | .14 |

CAL YR 1984 TOTAL 39010.61 MEAN 107 MAX 3040 MIN .60 CFSM 1.64 IN. 22.26
WTR YR 1985 TOTAL 12546.44 MEAN 34.4 MAX 852 MIN .09 CFSM .53 IN. 7.16

## 02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA

**LOCATION.**--Lat 37°08'24", long 80°16'00", Montgomery County, Hydrologic Unit 03010101, on right bank 95 ft downstream from bridge on State Highway 637, 0.3 mi downstream from Georges Run, 1.3 mi downstream from Elliott Creek, and 2.0 mi southwest of Shawsville.

**DRAINAGE AREA.**--110 mi².

**PERIOD OF RECORD.**--October 1960 to current year.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 1,361.87 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1974, water-stage recorder, and Aug. 26, 1974, to July 24, 1975, nonrecording gage at site 95 ft upstream at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 16, 22-30 and Feb. 9, 10. Records good except those for periods with ice effect, Jan. 16, 22-30 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--25 years, 108 ft³/s, 13.33 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 14,200 ft³/s, June 21, 1972, gage height, 11.12 ft, from high-water mark in well, from rating curve extended above 3,700 ft³/s on basis of slope-area measurement of peak flow; minimum, 7.5 ft³/s, July 27-29, 1966, gage height, 0.37 ft.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Sept. 30, 1959, reached a stage of 9.89 ft, from information by local resident.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 800 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1000 | *3,980 | *7.07 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 20 ft³/s, Jan. 21, gage height, 0.69 ft, result of freezeup; minimum daily, 22 ft³/s, July 23, 24, Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 104 | 33 | 65 | 46 | 183 | 154 | 91 | 52 | 57 | 48 | 44 | 64 |
| 2 | 47 | 33 | 56 | 47 | 374 | 133 | 74 | 59 | 51 | 40 | 51 | 59 |
| 3 | 35 | 34 | 52 | 115 | 238 | 112 | 71 | 66 | 48 | 35 | 38 | 54 |
| 4 | 33 | 38 | 47 | 214 | 157 | 100 | 67 | 53 | 50 | 35 | 33 | 51 |
| 5 | 31 | 67 | 47 | 180 | 123 | 94 | 63 | 49 | 48 | 31 | 32 | 48 |
| 6 | 29 | 46 | 52 | 131 | 108 | 82 | 74 | 47 | 47 | 30 | 31 | 47 |
| 7 | 29 | 38 | 40 | 110 | 89 | 74 | 66 | 46 | 54 | 28 | 32 | 44 |
| 8 | 29 | 35 | 44 | 92 | 74 | 75 | 68 | 44 | 53 | 25 | 32 | 42 |
| 9 | 29 | 34 | 43 | 76 | 70 | 83 | 61 | 42 | 43 | 24 | 30 | 41 |
| 10 | 29 | 34 | 45 | 66 | 58 | 71 | 58 | 41 | 41 | 29 | 28 | 40 |
| 11 | 30 | 35 | 51 | 62 | 70 | 73 | 57 | 43 | 42 | 39 | 26 | 38 |
| 12 | 29 | 35 | 48 | 51 | 146 | 76 | 55 | 57 | 62 | 27 | 25 | 39 |
| 13 | 29 | 32 | 45 | 52 | 111 | 68 | 54 | 63 | 46 | 29 | 24 | 40 |
| 14 | 29 | 31 | 43 | 61 | 103 | 65 | 54 | 54 | 38 | 30 | 23 | 36 |
| 15 | 29 | 31 | 42 | 50 | 81 | 61 | 61 | 50 | 36 | 48 | 22 | 36 |
| 16 | 29 | 31 | 41 | 45 | 73 | 59 | 127 | 121 | 48 | 65 | 24 | 34 |
| 17 | 30 | 31 | 41 | 53 | 61 | 59 | 122 | 126 | 58 | 35 | 51 | 33 |
| 18 | 30 | 31 | 41 | 52 | 60 | 57 | 102 | 106 | 40 | 29 | 1860 | 33 |
| 19 | 30 | 49 | 41 | 49 | 66 | 55 | 91 | 84 | 36 | 26 | 485 | 32 |
| 20 | 30 | 47 | 42 | 38 | 80 | 55 | 80 | 64 | 33 | 24 | 225 | 31 |
| 21 | 30 | 38 | 47 | 27 | 98 | 53 | 72 | 63 | 32 | 23 | 162 | 31 |
| 22 | 32 | 33 | 55 | 32 | 142 | 63 | 66 | 66 | 31 | 23 | 119 | 31 |
| 23 | 37 | 32 | 50 | 28 | 155 | 127 | 61 | 134 | 30 | 22 | 93 | 32 |
| 24 | 36 | 34 | 48 | 27 | 162 | 142 | 67 | 301 | 28 | 22 | 82 | 32 |
| 25 | 36 | 34 | 49 | 27 | 161 | 144 | 110 | 278 | 27 | 83 | 144 | 30 |
| 26 | 35 | 33 | 45 | 28 | 352 | 125 | 75 | 180 | 27 | 110 | 144 | 29 |
| 27 | 34 | 33 | 44 | 29 | 269 | 109 | 68 | 126 | 25 | 67 | 149 | 29 |
| 28 | 33 | 127 | 43 | 31 | 193 | 98 | 65 | 97 | 25 | 61 | 118 | 29 |
| 29 | 37 | 131 | 42 | 33 | --- | 90 | 60 | 81 | 26 | 55 | 95 | 27 |
| 30 | 36 | 83 | 42 | 36 | --- | 81 | 55 | 69 | 27 | 47 | 80 | 27 |
| 31 | 35 | --- | 49 | 50 | --- | 78 | --- | 64 | --- | 45 | 75 | --- |
| TOTAL | 1071 | 1323 | 1440 | 1938 | 3857 | 2716 | 2195 | 2725 | 1209 | 1235 | 4377 | 1139 |
| MEAN | 34.5 | 44.1 | 46.5 | 62.5 | 138 | 87.6 | 73.2 | 87.9 | 40.3 | 39.8 | 141 | 38.0 |
| MAX | 104 | 131 | 65 | 214 | 374 | 154 | 127 | 301 | 62 | 110 | 1860 | 64 |
| MIN | 29 | 31 | 40 | 27 | 58 | 53 | 54 | 41 | 25 | 22 | 22 | 27 |
| CFSM | .31 | .40 | .42 | .57 | 1.25 | .80 | .67 | .80 | .37 | .36 | 1.28 | .35 |
| IN. | .36 | .45 | .49 | .66 | 1.30 | .92 | .74 | .92 | .41 | .42 | 1.46 | .39 |

CAL YR 1984 TOTAL 40648 MEAN 111 MAX 1380 MIN 25 CFSM 1.01 IN. 13.75
WTR YR 1985 TOTAL 25225 MEAN 69.1 MAX 1860 MIN 22 CFSM .63 IN. 8.53

## 02054500 ROANOKE RIVER AT LAFAYETTE, VA

**LOCATION.**--Lat 37°14'11", long 80°12'34", Montgomery County, Hydrologic Unit 03010101, on right bank 120 ft upstream from bridge on State Highway 603 at Lafayette, 0.4 mi downstream from confluence of North and South Forks, and 1.1 mi upstream from Cove Hollow.

**DRAINAGE AREA.**--257 mi².

**PERIOD OF RECORD.**--September 1943 to current year.

**REVISED RECORDS.**--WSP 1333: 1944-47(M), 1948-49.

**GAGE.**--Water-stage recorder. Datum of gage is 1,174.47 ft above National Geodetic Vertical Datum of 1929. Prior to July 30, 1949, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 22-30 and Feb. 10. Records good except those for periods with ice effect, Jan. 22-30 and Feb. 10, which are fair. Occasional diurnal fluctuation caused by meat-processing plant upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--42 years, 240 ft³/s, 12.68 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 24,500 ft³/s, June 21, 1972, gage height, 15.60 ft, from floodmarks, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 10 ft³/s, Jan. 14, 15, 18, 19, 1959.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1940 reached a stage of 12.2 ft, from information by local residents, discharge, 19,000 ft³/s, from rating curve extended above 12,000 ft³/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1215 | *6,510 | *8.65 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 18 ft³/s, Jan. 21, gage height, 0.77 ft, result of freezeup; minimum daily, 34 ft³/s, Jan. 21.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 161 | 68 | 111 | 91 | 471 | 297 | 168 | 109 | 134 | 78 | 77 | 149 |
| 2 | 96 | 67 | 95 | 90 | 930 | 256 | 143 | 112 | 117 | 83 | 90 | 137 |
| 3 | 72 | 68 | 88 | 169 | 581 | 219 | 136 | 131 | 109 | 70 | 72 | 125 |
| 4 | 65 | 71 | 81 | 507 | 345 | 193 | 129 | 107 | 105 | 72 | 59 | 117 |
| 5 | 62 | 108 | 81 | 390 | 262 | 181 | 121 | 95 | 107 | 69 | 53 | 110 |
| 6 | 59 | 96 | 92 | 269 | 226 | 159 | 140 | 90 | 104 | 66 | 52 | 106 |
| 7 | 58 | 81 | 78 | 217 | 190 | 143 | 130 | 86 | 104 | 61 | 54 | 101 |
| 8 | 58 | 76 | 75 | 179 | 138 | 137 | 130 | 82 | 110 | 55 | 53 | 98 |
| 9 | 61 | 73 | 79 | 152 | 116 | 146 | 122 | 79 | 91 | 52 | 51 | 98 |
| 10 | 60 | 71 | 78 | 133 | 110 | 130 | 115 | 76 | 83 | 51 | 47 | 93 |
| 11 | 58 | 77 | 85 | 122 | 125 | 127 | 112 | 77 | 86 | 68 | 44 | 90 |
| 12 | 58 | 76 | 84 | 106 | 319 | 135 | 109 | 83 | 109 | 56 | 51 | 91 |
| 13 | 58 | 72 | 81 | 93 | 274 | 121 | 104 | 101 | 95 | 54 | 54 | 92 |
| 14 | 58 | 70 | 79 | 97 | 194 | 117 | 102 | 90 | 79 | 74 | 45 | 85 |
| 15 | 58 | 69 | 78 | 87 | 168 | 111 | 110 | 85 | 74 | 70 | 39 | 83 |
| 16 | 60 | 68 | 76 | 67 | 145 | 106 | 257 | 163 | 91 | 96 | 43 | 81 |
| 17 | 61 | 68 | 76 | 93 | 140 | 104 | 252 | 173 | 120 | 68 | 80 | 80 |
| 18 | 62 | 69 | 74 | 89 | 131 | 101 | 207 | 156 | 85 | 56 | 3180 | 77 |
| 19 | 62 | 94 | 74 | 83 | 146 | 97 | 183 | 128 | 75 | 51 | 969 | 75 |
| 20 | 61 | 107 | 76 | 76 | 177 | 95 | 165 | 106 | 69 | 47 | 529 | 74 |
| 21 | 60 | 85 | 87 | 34 | 178 | 93 | 148 | 94 | 65 | 53 | 431 | 73 |
| 22 | 68 | 78 | 109 | 45 | 217 | 102 | 135 | 103 | 63 | 63 | 316 | 73 |
| 23 | 89 | 74 | 106 | 43 | 259 | 217 | 125 | 271 | 61 | 48 | 259 | 74 |
| 24 | 88 | 75 | 97 | 42 | 272 | 249 | 142 | 1640 | 58 | 45 | 240 | 74 |
| 25 | 75 | 75 | 96 | 42 | 271 | 254 | 279 | 972 | 56 | 65 | 731 | 73 |
| 26 | 71 | 74 | 90 | 43 | 612 | 227 | 197 | 485 | 55 | 167 | 442 | 69 |
| 27 | 67 | 74 | 86 | 45 | 521 | 201 | 167 | 316 | 52 | 108 | 330 | 68 |
| 28 | 66 | 154 | 83 | 48 | 370 | 184 | 151 | 244 | 51 | 98 | 259 | 66 |
| 29 | 73 | 225 | 81 | 50 | --- | 171 | 135 | 203 | 51 | 86 | 214 | 65 |
| 30 | 72 | 140 | 79 | 58 | --- | 156 | 119 | 171 | 53 | 75 | 187 | 65 |
| 31 | 68 | --- | 89 | 85 | --- | 147 | --- | 154 | --- | 80 | 171 | --- |
| TOTAL | 2145 | 2603 | 2644 | 3645 | 7888 | 4976 | 4533 | 6782 | 2512 | 2185 | 9222 | 2662 |
| MEAN | 69.2 | 86.8 | 85.3 | 118 | 282 | 161 | 151 | 219 | 83.7 | 70.5 | 297 | 88.7 |
| MAX | 161 | 225 | 111 | 507 | 930 | 297 | 279 | 1640 | 134 | 167 | 3180 | 149 |
| MIN | 58 | 67 | 74 | 34 | 110 | 93 | 102 | 76 | 51 | 45 | 39 | 65 |
| CFSM | .27 | .34 | .33 | .46 | 1.10 | .63 | .59 | .85 | .33 | .27 | 1.16 | .35 |
| IN. | .31 | .38 | .38 | .53 | 1.14 | .72 | .66 | .98 | .36 | .32 | 1.33 | .39 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 89622 | MEAN | 245 | MAX | 2830 | MIN | 48 | CFSM | .95 | IN. | 12.97 |
| WTR YR 1985 | TOTAL | 51797 | MEAN | 142 | MAX | 3180 | MIN | 34 | CFSM | .55 | IN. | 7.50 |

## 02055000 ROANOKE RIVER AT ROANOKE, VA

**LOCATION.**--Lat 37°15'30", long 79°56'20", Roanoke City, Hydrologic Unit 03010101, on left bank 50 ft downstream from Walnut Street Bridge, 3.2 mi upstream from Tinker Creek, and at mile 360.6.

**DRAINAGE AREA.**--395 mi$^2$.

**PERIOD OF RECORD.**--February 1899 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for July 1896 to January 1899 published in WSP 11, 15, 27, and 20th Annual Report, Part 4, are unreliable, due to doubtful gage-height record, and should not be used.

**REVISED RECORDS.**--WSP 972: 1928, 1930, 1933. WSP 1433: 1899-1904, 1914-17(M), 1918-24, 1925-27(M), 1929-34(M), 1935, 1936-39(M). WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1940(M). See also PERIOD OF RECORD.

**GAGE.**--Water-stage recorder. Datum of gage is 906.84 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage on downstream side of highway bridge 50 ft upstream at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 21, 26. Records good except those for periods with ice effect, Jan. 21, 26, which are fair. Prior to 1949, diurnal fluctuation at low flow caused by powerplants upstream from station. Appalachian Power Company gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--86 years, 371 ft$^3$/s, 12.75 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 25,300 ft$^3$/s, June 21, 1972, gage height, 19.61 ft, from floodmarks; practically no flow Dec. 23, 1909, Dec. 19, 1963, when flow was retarded by freezing, gage height, 0.0 ft; minimum daily discharge, 19 ft$^3$/s, Aug. 29, 1981.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| May 24 | 1030 | 3,660 | 5.61 | Aug. 18 | 1300 | *11,400 | *11.32 |

Minimum discharge, 42 ft$^3$/s, Jan. 21, result of freezeup, and Aug. 16, gage height, 0.39 ft; minimum daily, 49 ft$^3$/s, July 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 245 | 75 | 155 | 118 | 493 | 439 | 219 | 134 | 189 | 94 | 162 | 209 |
| 2 | 161 | 73 | 132 | 122 | 1290 | 370 | 196 | 140 | 160 | 96 | 139 | 184 |
| 3 | 103 | 71 | 118 | 276 | 984 | 314 | 178 | 149 | 145 | 88 | 123 | 164 |
| 4 | 86 | 127 | 110 | 699 | 583 | 274 | 169 | 138 | 134 | 79 | 97 | 152 |
| 5 | 80 | 120 | 114 | 591 | 419 | 250 | 158 | 120 | 136 | 100 | 83 | 140 |
| 6 | 77 | 113 | 130 | 406 | 342 | 224 | 168 | 109 | 133 | 85 | 76 | 131 |
| 7 | 74 | 94 | 117 | 310 | 290 | 197 | 172 | 102 | 141 | 72 | 78 | 123 |
| 8 | 73 | 84 | 99 | 260 | 227 | 181 | 160 | 96 | 134 | 64 | 75 | 118 |
| 9 | 76 | 81 | 102 | 217 | 163 | 185 | 154 | 92 | 122 | 56 | 71 | 112 |
| 10 | 76 | 79 | 102 | 183 | 186 | 173 | 145 | 89 | 106 | 54 | 66 | 108 |
| 11 | 73 | 85 | 101 | 161 | 185 | 164 | 139 | 90 | 113 | 53 | 61 | 101 |
| 12 | 72 | 83 | 106 | 146 | 686 | 170 | 134 | 122 | 124 | 67 | 57 | 119 |
| 13 | 70 | 79 | 102 | 121 | 574 | 154 | 130 | 119 | 128 | 111 | 82 | 99 |
| 14 | 70 | 76 | 99 | 125 | 352 | 147 | 127 | 107 | 103 | 80 | 62 | 96 |
| 15 | 70 | 73 | 96 | 121 | 288 | 141 | 127 | 111 | 91 | 92 | 52 | 91 |
| 16 | 70 | 73 | 95 | 96 | 244 | 134 | 320 | 180 | 105 | 81 | 66 | 85 |
| 17 | 70 | 72 | 92 | 118 | 224 | 130 | 377 | 198 | 123 | 91 | 201 | 82 |
| 18 | 71 | 74 | 90 | 116 | 199 | 127 | 300 | 183 | 113 | 66 | 6920 | 81 |
| 19 | 72 | 118 | 89 | 110 | 199 | 122 | 257 | 150 | 97 | 55 | 2210 | 78 |
| 20 | 72 | 108 | 90 | 97 | 230 | 119 | 229 | 129 | 88 | 51 | 874 | 74 |
| 21 | 71 | 100 | 129 | 56 | 238 | 116 | 203 | 116 | 82 | 55 | 692 | 74 |
| 22 | 85 | 88 | 123 | 62 | 265 | 176 | 180 | 124 | 78 | 104 | 448 | 73 |
| 23 | 103 | 82 | 132 | 78 | 316 | 304 | 162 | 435 | 75 | 62 | 324 | 72 |
| 24 | 97 | 80 | 124 | 84 | 350 | 332 | 167 | 2820 | 71 | 49 | 287 | 71 |
| 25 | 91 | 80 | 120 | 93 | 373 | 345 | 298 | 1920 | 66 | 131 | 714 | 68 |
| 26 | 81 | 79 | 116 | 90 | 688 | 312 | 259 | 906 | 62 | 166 | 990 | 67 |
| 27 | 78 | 78 | 109 | 81 | 767 | 278 | 210 | 553 | 59 | 166 | 564 | 63 |
| 28 | 77 | 189 | 104 | 83 | 558 | 255 | 187 | 392 | 57 | 135 | 411 | 61 |
| 29 | 80 | 284 | 103 | 84 | --- | 234 | 166 | 310 | 56 | 127 | 318 | 60 |
| 30 | 80 | 202 | 103 | 78 | --- | 217 | 146 | 255 | 60 | 108 | 266 | 59 |
| 31 | 78 | --- | 128 | 116 | --- | 205 | --- | 220 | --- | 130 | 238 | --- |
| TOTAL | 2682 | 3020 | 3430 | 5298 | 11713 | 6789 | 5837 | 10609 | 3151 | 2768 | 16807 | 3015 |
| MEAN | 86.5 | 101 | 111 | 171 | 418 | 219 | 195 | 342 | 105 | 89.3 | 542 | 101 |
| MAX | 245 | 284 | 155 | 699 | 1290 | 439 | 377 | 2820 | 189 | 166 | 6920 | 209 |
| MIN | 70 | 71 | 89 | 56 | 163 | 116 | 127 | 89 | 56 | 49 | 52 | 59 |
| CFSM | .22 | .26 | .28 | .43 | 1.06 | .55 | .49 | .87 | .27 | .23 | 1.37 | .26 |
| IN. | .25 | .28 | .32 | .50 | 1.10 | .64 | .55 | 1.00 | .30 | .26 | 1.58 | .28 |

CAL YR 1984 TOTAL 132521 MEAN 362 MAX 5010 MIN 58 CFSM .92 IN. 12.48
WTR YR 1985 TOTAL 75119 MEAN 206 MAX 6920 MIN 49 CFSM .52 IN. 7.07

## 02055100 TINKER CREEK NEAR DALEVILLE, VA

LOCATION.--Lat 37°25'03", long 79°56'08", Botetourt County, Hydrologic Unit 03010101, on left bank 1,100 ft downstream from Norfolk and Western Railway bridge, 0.2 mi downstream from unnamed tributary, 0.5 mi south of Glebe Mills, and 1.3 mi northwest of Daleville.

DRAINAGE AREA.--11.7 mi².

PERIOD OF RECORD.--April 1956 to current year.

REVISED RECORDS.--WSP 1904: 1958-60(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,217.47 ft above National Geodetic Vertical Datum of 1929 (Norfolk and Western Railway bench mark).

REMARKS.--Estimated daily discharges: Jan. 16-31. Records good except those for period with ice effect, Jan. 16-31, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--29 years, 11.7 ft³/s, 13.58 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft³/s, June 21, 1972, gage height, 9.82 ft, from rating curve extended above 100 ft³/s on basis of contracted-opening measurement at gage height 9.82 ft and slope-area measurements at gage heights 8.52 ft and 9.82 ft; minimum, 0.20 ft³/s, Jan. 24, 1961, result of freezeup; minimum daily, 0.90 ft³/s, July 26, 1966; minimum gage height, 0.99 ft, June 12, 24, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1940 reached a stage of 9.0 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 250 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 0715 | *508 | *4.95 | Aug. 20 | 1900 | 452 | 4.73 |

Minimum discharge, 2.7 ft³/s, part of each day Aug. 12-16, gage height, 1.13 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 5.3 | 7.5 | 6.6 | 72 | 11 | 6.6 | 4.4 | 8.3 | 5.8 | 4.8 | 11 |
| 2 | 6.6 | 5.2 | 6.7 | 6.5 | 49 | 11 | 6.0 | 5.2 | 7.8 | 5.1 | 4.5 | 9.9 |
| 3 | 6.3 | 5.0 | 6.8 | 20 | 30 | 10 | 5.9 | 5.2 | 7.3 | 4.2 | 3.8 | 9.4 |
| 4 | 6.0 | 6.3 | 6.2 | 32 | 24 | 9.9 | 5.8 | 4.6 | 6.8 | 4.7 | 3.6 | 8.7 |
| 5 | 5.7 | 8.8 | 5.9 | 23 | 19 | 9.4 | 5.7 | 4.3 | 6.7 | 5.4 | 3.4 | 8.3 |
| 6 | 5.5 | 6.2 | 7.5 | 18 | 17 | 8.6 | 6.3 | 4.2 | 6.6 | 4.5 | 3.4 | 7.9 |
| 7 | 5.4 | 5.6 | 6.4 | 15 | 15 | 8.4 | 6.1 | 4.3 | 7.4 | 3.9 | 3.7 | 7.8 |
| 8 | 5.4 | 5.4 | 6.1 | 13 | 13 | 8.3 | 6.1 | 4.1 | 6.8 | 3.7 | 3.6 | 7.5 |
| 9 | 5.6 | 5.3 | 5.9 | 11 | 13 | 8.0 | 5.9 | 4.0 | 6.0 | 3.6 | 3.3 | 7.2 |
| 10 | 5.5 | 5.2 | 6.0 | 10 | 11 | 7.4 | 5.6 | 3.9 | 5.9 | 5.4 | 3.1 | 6.9 |
| 11 | 5.6 | 5.4 | 6.0 | 9.7 | 11 | 7.8 | 5.6 | 4.6 | 9.0 | 4.9 | 3.0 | 6.5 |
| 12 | 5.9 | 5.0 | 5.9 | 9.1 | 82 | 7.8 | 5.6 | 4.7 | 12 | 3.9 | 2.9 | 6.8 |
| 13 | 5.9 | 5.2 | 5.7 | 8.9 | 28 | 8.0 | 5.5 | 4.1 | 7.2 | 4.3 | 2.9 | 6.4 |
| 14 | 5.9 | 5.3 | 5.5 | 9.2 | 24 | 8.0 | 5.5 | 3.8 | 6.2 | 4.6 | 2.9 | 6.1 |
| 15 | 5.6 | 5.3 | 5.3 | 9.8 | 18 | 7.6 | 5.5 | 3.8 | 5.8 | 4.6 | 2.8 | 6.0 |
| 16 | 5.8 | 5.6 | 5.3 | 7.5 | 15 | 7.7 | 8.7 | 4.7 | 6.0 | 4.0 | 3.2 | 5.8 |
| 17 | 6.0 | 5.9 | 5.3 | 9.0 | 14 | 7.2 | 6.3 | 5.9 | 5.6 | 3.6 | 4.9 | 5.5 |
| 18 | 5.9 | 6.2 | 5.1 | 8.8 | 13 | 7.0 | 5.8 | 4.4 | 5.3 | 3.4 | 165 | 5.3 |
| 19 | 5.8 | 8.6 | 5.1 | 8.0 | 12 | 6.7 | 5.5 | 4.1 | 5.0 | 3.3 | 31 | 5.2 |
| 20 | 5.6 | 6.9 | 5.0 | 7.0 | 11 | 6.5 | 5.4 | 3.9 | 4.9 | 3.2 | 61 | 5.2 |
| 21 | 5.6 | 6.5 | 6.6 | 4.5 | 11 | 6.4 | 5.2 | 4.1 | 4.8 | 3.1 | 37 | 5.1 |
| 22 | 6.7 | 6.4 | 6.3 | 5.4 | 11 | 8.5 | 5.2 | 4.2 | 4.6 | 3.1 | 25 | 5.2 |
| 23 | 9.7 | 6.3 | 5.7 | 6.4 | 11 | 14 | 5.0 | 23 | 4.7 | 3.2 | 20 | 5.2 |
| 24 | 9.1 | 6.0 | 5.7 | 7.0 | 11 | 9.7 | 5.4 | 91 | 4.6 | 3.1 | 16 | 5.1 |
| 25 | 7.2 | 5.9 | 5.5 | 7.5 | 10 | 8.5 | 5.8 | 41 | 4.3 | 8.6 | 41 | 5.0 |
| 26 | 6.8 | 5.7 | 5.2 | 7.0 | 17 | 7.7 | 5.0 | 25 | 4.2 | 6.2 | 28 | 5.0 |
| 27 | 6.6 | 5.7 | 5.2 | 6.4 | 14 | 7.3 | 4.9 | 19 | 4.1 | 9.3 | 21 | 5.5 |
| 28 | 6.4 | 15 | 5.1 | 6.6 | 13 | 7.2 | 4.8 | 14 | 4.2 | 5.8 | 17 | 5.6 |
| 29 | 6.5 | 8.6 | 5.1 | 6.4 | --- | 6.9 | 4.6 | 11 | 4.1 | 5.0 | 14 | 5.6 |
| 30 | 5.9 | 6.7 | 5.0 | 6.2 | --- | 6.6 | 4.5 | 10 | 4.6 | 4.3 | 13 | 5.5 |
| 31 | 5.5 | --- | 7.5 | 10 | --- | 6.7 | --- | 9.4 | --- | 4.2 | 12 | --- |
| TOTAL | 198.0 | 190.5 | 182.1 | 315.5 | 589 | 255.8 | 169.8 | 339.9 | 180.8 | 142.0 | 560.8 | 196.2 |
| MEAN | 6.39 | 6.35 | 5.87 | 10.2 | 21.0 | 8.25 | 5.66 | 11.0 | 6.03 | 4.58 | 18.1 | 6.54 |
| MAX | 12 | 15 | 7.5 | 32 | 82 | 14 | 8.7 | 91 | 12 | 9.3 | 165 | 11 |
| MIN | 5.4 | 5.0 | 5.0 | 4.5 | 10 | 6.4 | 4.5 | 3.8 | 4.1 | 3.1 | 2.8 | 5.0 |
| CFSM | .55 | .54 | .50 | .87 | 1.79 | .71 | .48 | .94 | .52 | .39 | 1.55 | .56 |
| IN. | .63 | .61 | .58 | 1.00 | 1.87 | .81 | .54 | 1.08 | .57 | .45 | 1.78 | .62 |

CAL YR 1984 TOTAL 5702.4 MEAN 15.6 MAX 188 MIN 4.4 CFSM 1.33 IN. 18.13
WTR YR 1985 TOTAL 3320.4 MEAN 9.10 MAX 165 MIN 2.8 CFSM .78 IN. 10.56

## 02056000 ROANOKE RIVER AT NIAGARA, VA

**LOCATION.**--Lat 37°15'18", long 79°52'18", Roanoke County, Hydrologic Unit 03010101, on right bank 200 ft downstream from powerplant of Appalachian Power Company at Niagara, 2 mi downstream from Tinker Creek, 2.1 mi southeast of Vinton, and at mile 355.3.

**DRAINAGE AREA.**--512 $mi^2$.

**PERIOD OF RECORD.**--July 1926 to current year.

**REVISED RECORDS.**--WSP 972: 1927(M), 1929(M), 1934(M), 1937(M). WSP 1303: 1928, 1930, 1933-38, 1940. WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1930(M), 1933(M), 1935-36(M), 1938(M), 1940, 1944-45(M), 1948-49(M), 1951(M), 1955(M), 1960(M), 1967(M), 1969(M).

**GAGE.**--Water-stage recorder. Datum of gage is 820.15 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

**REMARKS.**--Estimated daily discharges: Jan. 20-24. Records good except those for period with ice effect, Jan. 20-24, which are fair. Flow regulated by dam and powerplant 200 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--59 years, 511 $ft^3/s$, 13.55 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 29,300 $ft^3/s$, Apr. 27, 1978, gage height, 19.12 ft, from rating curve extended above 12,000 $ft^3/s$ on basis of slope-area measurement at gage height 18.98 ft; minimum, 1.0 $ft^3/s$, Oct. 16, 20, 1956; minimum daily, 8 $ft^3/s$, Oct. 9, 1954; minimum gage height, 0.17 ft, Aug. 25, 1971.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 3,500 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| May 24 | 1115 | 4,700 | 8.74 | Aug. 18 | 1345 | *16,500 | *14.82 |

Minimum discharge, 16 $ft^3/s$, May 9, 13, 15, Sept. 16, gage height, 0.55 ft; minimum daily, 112 $ft^3/s$, July 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 487 | 179 | 285 | 172 | 825 | 593 | 358 | 257 | 332 | 198 | 331 | 325 |
| 2 | 311 | 140 | 205 | 230 | 1750 | 519 | 335 | 238 | 299 | 189 | 305 | 296 |
| 3 | 225 | 153 | 244 | 454 | 1350 | 453 | 311 | 276 | 283 | 131 | 207 | 283 |
| 4 | 180 | 229 | 184 | 968 | 854 | 410 | 297 | 260 | 249 | 157 | 191 | 253 |
| 5 | 182 | 347 | 234 | 807 | 675 | 381 | 285 | 222 | 212 | 220 | 138 | 238 |
| 6 | 178 | 208 | 267 | 605 | 574 | 361 | 284 | 216 | 286 | 184 | 159 | 228 |
| 7 | 177 | 198 | 211 | 447 | 499 | 325 | 287 | 191 | 272 | 133 | 167 | 213 |
| 8 | 143 | 167 | 213 | 397 | 417 | 306 | 284 | 191 | 267 | 153 | 163 | 204 |
| 9 | 202 | 177 | 187 | 349 | 330 | 300 | 278 | 196 | 234 | 151 | 163 | 220 |
| 10 | 165 | 173 | 188 | 314 | 334 | 296 | 253 | 169 | 200 | 131 | 144 | 203 |
| 11 | 150 | 162 | 198 | 292 | 323 | 287 | 246 | 208 | 237 | 127 | 137 | 192 |
| 12 | 191 | 161 | 199 | 277 | 1270 | 290 | 248 | 247 | 269 | 158 | 136 | 232 |
| 13 | 145 | 160 | 201 | 232 | 961 | 287 | 215 | 213 | 236 | 271 | 157 | 193 |
| 14 | 147 | 182 | 178 | 233 | 647 | 277 | 248 | 212 | 210 | 211 | 140 | 181 |
| 15 | 172 | 140 | 213 | 229 | 535 | 246 | 215 | 189 | 190 | 213 | 133 | 173 |
| 16 | 153 | 153 | 159 | 222 | 451 | 285 | 504 | 352 | 195 | 172 | 141 | 143 |
| 17 | 172 | 163 | 166 | 224 | 401 | 237 | 512 | 319 | 263 | 166 | 327 | 166 |
| 18 | 153 | 162 | 183 | 231 | 367 | 171 | 433 | 297 | 212 | 138 | 9510 | 163 |
| 19 | 172 | 259 | 213 | 228 | 349 | 228 | 385 | 265 | 193 | 146 | 2950 | 158 |
| 20 | 153 | 173 | 145 | 170 | 367 | 226 | 354 | 229 | 186 | 139 | 1300 | 157 |
| 21 | 165 | 199 | 278 | 130 | 373 | 221 | 321 | 222 | 154 | 129 | 1150 | 153 |
| 22 | 178 | 160 | 226 | 150 | 391 | 338 | 303 | 229 | 149 | 179 | 740 | 152 |
| 23 | 209 | 169 | 226 | 170 | 439 | 544 | 284 | 717 | 170 | 147 | 547 | 164 |
| 24 | 208 | 169 | 181 | 190 | 473 | 508 | 276 | 3690 | 162 | 112 | 487 | 152 |
| 25 | 168 | 167 | 220 | 195 | 506 | 507 | 430 | 2670 | 133 | 274 | 987 | 149 |
| 26 | 192 | 145 | 191 | 183 | 848 | 476 | 388 | 1340 | 143 | 307 | 1410 | 148 |
| 27 | 178 | 188 | 206 | 178 | 931 | 434 | 329 | 829 | 151 | 304 | 846 | 143 |
| 28 | 148 | 311 | 190 | 184 | 723 | 406 | 307 | 602 | 135 | 251 | 629 | 139 |
| 29 | 160 | 396 | 187 | 181 | --- | 384 | 286 | 491 | 141 | 223 | 499 | 137 |
| 30 | 174 | 324 | 179 | 174 | --- | 356 | 268 | 414 | 143 | 210 | 415 | 139 |
| 31 | 169 | --- | 271 | 276 | --- | 339 | --- | 368 | --- | 206 | 368 | --- |
| TOTAL | 5807 | 5914 | 6428 | 9092 | 17963 | 10991 | 9524 | 16319 | 6306 | 5730 | 24977 | 5697 |
| MEAN | 187 | 197 | 207 | 293 | 642 | 355 | 317 | 526 | 210 | 185 | 806 | 190 |
| MAX | 487 | 396 | 285 | 968 | 1750 | 593 | 512 | 3690 | 332 | 307 | 9510 | 325 |
| MIN | 143 | 140 | 145 | 130 | 323 | 171 | 215 | 169 | 133 | 112 | 133 | 137 |
| CFSM | .37 | .38 | .40 | .57 | 1.25 | .69 | .62 | 1.03 | .41 | .36 | 1.57 | .37 |
| IN. | .42 | .43 | .47 | .66 | 1.31 | .80 | .69 | 1.19 | .46 | .42 | 1.81 | .41 |

CAL YR 1984 TOTAL 201491 MEAN 551 MAX 6720 MIN 126 CFSM 1.08 IN. 14.64
WTR YR 1985 TOTAL 124748 MEAN 342 MAX 9510 MIN 112 CFSM .67 IN. 9.06

## 02056650 BACK CREEK NEAR DUNDEE, VA

**LOCATION.**--Lat 37°13'40", long 79°52'06", Roanoke County, Hydrologic Unit 03010101, on right bank at upstream side of bridge on State Highway 660, 0.9 mi upstream from Horseshoe Branch, 1.1 mi southeast of Dundee, 2.8 mi west of Hardy post office, and at mile 2.4.

**DRAINAGE AREA.**--56.8 mi².

**PERIOD OF RECORD.**--July 1974 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 822.67 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1975, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Dec. 8, 9 and Jan. 13-30. Records good except those for periods with ice effect, Dec. 8, 9 and Jan. 13-30, which are fair. Several measurements of water temperature were made during the year.

**AVERAGE DISCHARGE.**--11 years, 59.7 ft³/s, 14.27 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 7,500 ft³/s, May 29, 1976, gage height, 15.00 ft, from floodmarks; minimum daily, 0.90 ft³/s, Aug. 30, 1981.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Floods of May 30, 1971, and June 21, 1972, reached a stage of 17.5 ft and 20.0 ft, respectively, from information by local resident.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 600 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1320 | *5,110 | *12.46 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 5.1 ft³/s, July 22, 23, gage height, 0.63 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 80 | 13 | 31 | 25 | 96 | 70 | 45 | 22 | 30 | 19 | 14 | 39 |
| 2 | 31 | 12 | 26 | 24 | 219 | 62 | 41 | 23 | 26 | 25 | 22 | 36 |
| 3 | 19 | 12 | 25 | 68 | 121 | 54 | 38 | 30 | 24 | 20 | 15 | 32 |
| 4 | 15 | 17 | 22 | 140 | 81 | 50 | 37 | 23 | 25 | 14 | 12 | 30 |
| 5 | 14 | 56 | 21 | 120 | 62 | 47 | 35 | 20 | 26 | 12 | 11 | 28 |
| 6 | 13 | 34 | 30 | 79 | 55 | 42 | 36 | 19 | 25 | 11 | 10 | 26 |
| 7 | 12 | 17 | 24 | 59 | 49 | 38 | 34 | 17 | 23 | 11 | 11 | 24 |
| 8 | 12 | 15 | 22 | 49 | 35 | 37 | 35 | 17 | 24 | 9.2 | 20 | 24 |
| 9 | 12 | 14 | 20 | 42 | 39 | 37 | 33 | 16 | 19 | 8.0 | 12 | 22 |
| 10 | 12 | 13 | 23 | 36 | 44 | 35 | 31 | 16 | 16 | 8.3 | 10 | 20 |
| 11 | 12 | 13 | 22 | 33 | 38 | 34 | 31 | 18 | 17 | 12 | 9.7 | 19 |
| 12 | 12 | 13 | 22 | 30 | 173 | 35 | 31 | 29 | 17 | 9.1 | 9.1 | 24 |
| 13 | 12 | 11 | 20 | 25 | 105 | 32 | 29 | 23 | 16 | 11 | 8.6 | 23 |
| 14 | 12 | 11 | 20 | 26 | 68 | 32 | 29 | 18 | 14 | 9.4 | 8.1 | 19 |
| 15 | 12 | 11 | 20 | 24 | 55 | 30 | 29 | 16 | 13 | 11 | 7.5 | 18 |
| 16 | 12 | 11 | 19 | 20 | 48 | 29 | 67 | 43 | 14 | 12 | 7.4 | 18 |
| 17 | 12 | 11 | 18 | 23 | 46 | 29 | 53 | 32 | 26 | 9.4 | 16 | 18 |
| 18 | 12 | 11 | 18 | 24 | 41 | 28 | 46 | 25 | 15 | 7.5 | 2050 | 16 |
| 19 | 12 | 18 | 18 | 22 | 43 | 27 | 41 | 20 | 13 | 6.8 | 360 | 16 |
| 20 | 12 | 19 | 18 | 20 | 50 | 27 | 36 | 17 | 12 | 6.4 | 150 | 16 |
| 21 | 12 | 14 | 23 | 12 | 44 | 27 | 35 | 19 | 11 | 6.0 | 117 | 14 |
| 22 | 12 | 13 | 30 | 13 | 45 | 36 | 32 | 20 | 10 | 5.7 | 78 | 15 |
| 23 | 13 | 12 | 26 | 16 | 52 | 130 | 31 | 57 | 10 | 5.2 | 58 | 15 |
| 24 | 17 | 13 | 23 | 17 | 53 | 101 | 30 | 255 | 10 | 5.7 | 49 | 14 |
| 25 | 16 | 12 | 23 | 19 | 54 | 82 | 39 | 177 | 8.9 | 22 | 114 | 14 |
| 26 | 16 | 12 | 21 | 18 | 123 | 64 | 30 | 90 | 8.3 | 65 | 159 | 13 |
| 27 | 15 | 12 | 20 | 17 | 108 | 59 | 27 | 63 | 7.9 | 26 | 166 | 13 |
| 28 | 13 | 50 | 20 | 18 | 84 | 54 | 27 | 47 | 7.6 | 21 | 89 | 12 |
| 29 | 13 | 68 | 20 | 18 | --- | 50 | 24 | 41 | 7.4 | 21 | 63 | 12 |
| 30 | 13 | 38 | 20 | 17 | --- | 46 | 22 | 35 | 7.6 | 16 | 50 | 13 |
| 31 | 13 | --- | 23 | 27 | --- | 43 | --- | 33 | --- | 16 | 47 | --- |
| TOTAL | 493 | 576 | 688 | 1081 | 2031 | 1467 | 1054 | 1281 | 483.7 | 441.7 | 3753.4 | 603 |
| MEAN | 15.9 | 19.2 | 22.2 | 34.9 | 72.5 | 47.3 | 35.1 | 41.3 | 16.1 | 14.2 | 121 | 20.1 |
| MAX | 80 | 68 | 31 | 140 | 219 | 130 | 67 | 255 | 30 | 65 | 2050 | 39 |
| MIN | 12 | 11 | 18 | 12 | 35 | 27 | 22 | 16 | 7.4 | 5.2 | 7.4 | 12 |
| CFSM | .28 | .34 | .39 | .61 | 1.28 | .83 | .62 | .73 | .28 | .25 | 2.13 | .35 |
| IN. | .32 | .38 | .45 | .71 | 1.33 | .96 | .69 | .84 | .32 | .29 | 2.46 | .39 |

CAL YR 1984 TOTAL 20930.1 MEAN 57.2 MAX 984 MIN 9.4 CFSM 1.01 IN. 13.71
WTR YR 1985 TOTAL 13952.8 MEAN 38.2 MAX 2050 MIN 5.2 CFSM .67 IN. 9.14

## 02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA

LOCATION.--Lat 37°02'42", long 79°50'40", Franklin County, Hydrologic Unit 03010101, on right bank 45 ft downstream from bridge on State Highway 122, 3.0 mi northeast of Rocky Mount, and 4.1 mi upstream from Maggodee Creek.

DRAINAGE AREA.--115 mi².

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 14, 15, 22-30 and Feb. 6, 7, 10. Records good except those for periods with ice effect, Jan. 14, 15, 22-30 and Feb. 6, 7, 10, which are fair. Appalachian Power Company gage-height telemeter at station. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--9 years, 131 ft³/s, 15.47 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,130 ft³/s, Sept. 22, 1979, gage height, 16.38 ft; minimum, 7.2 ft³/s, Aug. 28, 1981, gage height, 1.16 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1930 | *4,470 | *10.95 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 23 ft³/s, July 22, 24, Aug. 15, gage height, 1.49 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 136 | 48 | 70 | 65 | 177 | 134 | 87 | 55 | 71 | 64 | 50 | 99 |
| 2 | 76 | 48 | 64 | 62 | 383 | 123 | 79 | 58 | 64 | 74 | 69 | 94 |
| 3 | 54 | 47 | 62 | 191 | 216 | 111 | 75 | 73 | 61 | 87 | 51 | 86 |
| 4 | 48 | 51 | 58 | 388 | 138 | 104 | 74 | 60 | 60 | 51 | 41 | 79 |
| 5 | 46 | 119 | 59 | 202 | 116 | 100 | 71 | 54 | 79 | 42 | 37 | 72 |
| 6 | 45 | 79 | 83 | 132 | 100 | 93 | 78 | 52 | 72 | 38 | 36 | 69 |
| 7 | 46 | 59 | 74 | 109 | 90 | 88 | 75 | 49 | 72 | 37 | 37 | 66 |
| 8 | 45 | 54 | 68 | 95 | 82 | 86 | 74 | 49 | 85 | 33 | 67 | 67 |
| 9 | 47 | 52 | 63 | 85 | 70 | 88 | 71 | 47 | 64 | 29 | 81 | 61 |
| 10 | 47 | 51 | 61 | 79 | 70 | 83 | 68 | 46 | 55 | 28 | 47 | 59 |
| 11 | 46 | 53 | 61 | 76 | 92 | 81 | 68 | 46 | 64 | 41 | 38 | 55 |
| 12 | 46 | 52 | 59 | 72 | 393 | 86 | 67 | 65 | 60 | 36 | 34 | 58 |
| 13 | 46 | 48 | 57 | 65 | 218 | 77 | 66 | 62 | 53 | 30 | 31 | 58 |
| 14 | 47 | 47 | 56 | 64 | 134 | 76 | 66 | 49 | 46 | 44 | 29 | 52 |
| 15 | 44 | 47 | 55 | 62 | 116 | 73 | 69 | 48 | 45 | 124 | 28 | 50 |
| 16 | 45 | 47 | 55 | 62 | 101 | 71 | 110 | 90 | 60 | 76 | 26 | 49 |
| 17 | 45 | 47 | 54 | 78 | 99 | 71 | 102 | 79 | 67 | 65 | 36 | 47 |
| 18 | 46 | 47 | 54 | 71 | 90 | 69 | 84 | 67 | 50 | 43 | 2770 | 46 |
| 19 | 47 | 55 | 54 | 67 | 88 | 67 | 79 | 54 | 43 | 35 | 738 | 44 |
| 20 | 46 | 65 | 55 | 59 | 91 | 67 | 75 | 50 | 39 | 32 | 315 | 42 |
| 21 | 47 | 53 | 60 | 42 | 88 | 66 | 72 | 53 | 37 | 29 | 206 | 41 |
| 22 | 46 | 51 | 68 | 52 | 89 | 77 | 68 | 57 | 36 | 27 | 155 | 42 |
| 23 | 53 | 49 | 63 | 45 | 93 | 173 | 65 | 401 | 35 | 28 | 127 | 42 |
| 24 | 56 | 49 | 57 | 46 | 95 | 136 | 64 | 469 | 38 | 26 | 112 | 41 |
| 25 | 52 | 49 | 57 | 48 | 97 | 113 | 88 | 272 | 36 | 57 | 132 | 38 |
| 26 | 52 | 49 | 54 | 50 | 274 | 100 | 70 | 150 | 33 | 129 | 192 | 36 |
| 27 | 50 | 48 | 53 | 52 | 202 | 93 | 65 | 112 | 31 | 98 | 316 | 36 |
| 28 | 49 | 87 | 54 | 56 | 155 | 90 | 66 | 95 | 28 | 75 | 179 | 34 |
| 29 | 50 | 159 | 54 | 58 | --- | 87 | 61 | 85 | 29 | 71 | 140 | 34 |
| 30 | 50 | 84 | 54 | 60 | --- | 84 | 57 | 79 | 31 | 59 | 120 | 34 |
| 31 | 48 | --- | 63 | 77 | --- | 81 | --- | 77 | --- | 49 | 110 | --- |
| TOTAL | 1601 | 1794 | 1859 | 2670 | 3957 | 2848 | 2214 | 3003 | 1544 | 1657 | 6350 | 1631 |
| MEAN | 51.6 | 59.8 | 60.0 | 86.1 | 141 | 91.9 | 73.8 | 96.9 | 51.5 | 53.5 | 205 | 54.4 |
| MAX | 136 | 159 | 83 | 388 | 393 | 173 | 110 | 469 | 85 | 129 | 2770 | 99 |
| MIN | 44 | 47 | 53 | 42 | 70 | 66 | 57 | 46 | 28 | 26 | 26 | 34 |
| CFSM | .45 | .52 | .52 | .75 | 1.23 | .80 | .64 | .84 | .45 | .47 | 1.78 | .47 |
| IN. | .52 | .58 | .60 | .86 | 1.28 | .92 | .72 | .97 | .50 | .54 | 2.05 | .53 |

CAL YR 1984 TOTAL 43107 MEAN 118 MAX 1110 MIN 34 CFSM 1.03 IN. 13.94
WTR YR 1985 TOTAL 31128 MEAN 85.3 MAX 2770 MIN 26 CFSM .74 IN. 10.07

## 02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA

**LOCATION.**--Lat 37°02'28", long 79°32'09", Pittsylvania County, Hydrologic Unit 03010101, at dam on Roanoke (Staunton) River 6.5 mi northeast of Penhook and at mile 314.0.

**DRAINAGE AREA.**--1,024 $mi^2$.

**PERIOD OF RECORD.**--September 1963 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to July 19, 1965, nonrecording gage at same site and datum.

**REMARKS.**--Reservoir is formed by concrete dam. Two ungated spillways, one near each end of dam, with crests at elevation 795 ft, are each 105 ft long. Initial filling began in September 1963 during construction; water in reservoir first reached minimum power pool, elevation, 787 ft, in May 1965. Total capacity at maximum pool elevation, 811 ft, is 1,517,000 acre-ft of which 375,000 acre-ft is upstream from the spillway crest; 157,800 acre-ft is normally used for power between elevation 787 ft, minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 601 ft, is 100 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (pumped storage) which is used for hydroelectric power, flood control, low-water regulation for pollution abatement and water supply, water releases for downstream fish spawning, and recreation.

**COOPERATION.**--Records were provided by the Appalachian Power Company.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum contents, 1,250,200 acre-ft, Apr. 27, 1978, elevation, 799.8 ft; minimum (after first filling to minimum power pool), 995,400 acre-ft, Jan. 23, 1970, elevation, 787.6 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum contents, 1,160,000 acre-ft, Aug. 18, 19, elevation, 795.8 ft; minimum, 1,091,000 acre-ft, Nov. 20-22, elevation, 792.5 ft.

### MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 794.2 | 1,125,700 | - |
| Oct. 31 | 793.7 | 1,115,500 | -10,200 |
| Nov. 30 | 793.0 | 1,101,200 | -14,300 |
| Dec. 31 | 794.4 | 1,129,800 | +28,600 |
| CAL YR 1984 | - | - | +2,100 |
| Jan. 31 | 794.1 | 1,123,600 | -6,200 |
| Feb. 28 | 793.9 | 1,119,600 | -4,000 |
| Mar. 31 | 794.8 | 1,137,900 | +18,300 |
| Apr. 30 | 794.7 | 1,135,900 | -2,000 |
| May 31 | 793.6 | 1,113,400 | -22,500 |
| June 30 | 794.2 | 1,125,700 | +12,300 |
| July 31 | 794.5 | 1,131,800 | +6,100 |
| Aug. 31 | 794.3 | 1,127,700 | -4,100 |
| Sept. 30 | 794.3 | 1,127,700 | 0 |
| WTR YR 1985 | - | - | +2,000 |

## 02058400 PIGG RIVER NEAR SANDY LEVEL, VA

**LOCATION.**--Lat 36°56'45", long 79°31'30", Pittsylvania County, Hydrologic Unit 03010101, on left bank 300 ft downstream from Harpen Creek, 0.5 mi upstream from bridge on State Highway 40, and 1.1 mi south of Sandy Level.

**DRAINAGE AREA.**--350 $mi^2$.

**PERIOD OF RECORD.**--May 1963 to current year.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 617.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 22-25. Records good except those for period with ice effect, Jan. 22-25, which are fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--22 years, 365 $ft^3/s$, 14.16 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 25,400 $ft^3/s$, Apr. 27, 1978, gage height, 25.56 ft, from rating curve extended above 12,000 $ft^3/s$ on basis of slope-area measurement of peak flow; minimum, 24 $ft^3/s$, Aug. 29, 30, 1981, gage height, 1.95 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 4,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 2200 | *17,100 | *21.54 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 96 $ft^3/s$, July 21-22, 25, gage height, 2.33 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 444 | 200 | 272 | 229 | 676 | 312 | 228 | 159 | 192 | 184 | 266 | 250 |
| 2 | 344 | 198 | 241 | 220 | 1750 | 298 | 220 | 160 | 171 | 291 | 472 | 236 |
| 3 | 222 | 191 | 235 | 1180 | 995 | 284 | 208 | 175 | 162 | 535 | 277 | 225 |
| 4 | 197 | 192 | 226 | 2590 | 524 | 275 | 204 | 179 | 162 | 271 | 192 | 213 |
| 5 | 190 | 274 | 226 | 1060 | 409 | 274 | 203 | 160 | 192 | 177 | 162 | 205 |
| 6 | 183 | 295 | 412 | 579 | 382 | 261 | 202 | 155 | 246 | 154 | 150 | 204 |
| 7 | 181 | 225 | 360 | 433 | 359 | 248 | 205 | 151 | 193 | 145 | 245 | 196 |
| 8 | 181 | 205 | 286 | 370 | 318 | 255 | 201 | 144 | 236 | 134 | 661 | 220 |
| 9 | 185 | 199 | 260 | 328 | 278 | 280 | 194 | 142 | 202 | 122 | 391 | 211 |
| 10 | 185 | 198 | 247 | 305 | 304 | 261 | 191 | 143 | 169 | 118 | 240 | 187 |
| 11 | 178 | 203 | 239 | 293 | 297 | 252 | 193 | 147 | 156 | 121 | 188 | 179 |
| 12 | 178 | 206 | 230 | 281 | 1420 | 257 | 194 | 151 | 222 | 115 | 163 | 175 |
| 13 | 176 | 197 | 226 | 269 | 1000 | 245 | 192 | 169 | 196 | 116 | 150 | 178 |
| 14 | 175 | 190 | 220 | 262 | 517 | 240 | 193 | 150 | 152 | 124 | 147 | 175 |
| 15 | 174 | 192 | 218 | 258 | 403 | 236 | 204 | 142 | 143 | 155 | 133 | 165 |
| 16 | 174 | 194 | 211 | 224 | 354 | 228 | 235 | 238 | 176 | 252 | 131 | 161 |
| 17 | 176 | 190 | 210 | 268 | 330 | 229 | 275 | 301 | 285 | 216 | 298 | 160 |
| 18 | 181 | 189 | 209 | 285 | 317 | 226 | 227 | 207 | 184 | 161 | 10600 | 158 |
| 19 | 180 | 231 | 214 | 284 | 301 | 220 | 207 | 163 | 151 | 118 | 6510 | 155 |
| 20 | 179 | 264 | 217 | 250 | 294 | 219 | 196 | 150 | 138 | 107 | 817 | 157 |
| 21 | 176 | 223 | 231 | 150 | 286 | 222 | 189 | 148 | 131 | 100 | 550 | 152 |
| 22 | 181 | 205 | 258 | 200 | 279 | 243 | 184 | 161 | 126 | 99 | 411 | 154 |
| 23 | 194 | 201 | 243 | 205 | 276 | 424 | 176 | 1240 | 122 | 115 | 332 | 158 |
| 24 | 526 | 202 | 218 | 215 | 276 | 398 | 172 | 989 | 123 | 105 | 303 | 155 |
| 25 | 363 | 201 | 211 | 225 | 276 | 311 | 218 | 749 | 126 | 141 | 464 | 148 |
| 26 | 242 | 199 | 201 | 219 | 409 | 265 | 226 | 418 | 126 | 593 | 488 | 141 |
| 27 | 219 | 199 | 200 | 208 | 454 | 245 | 183 | 287 | 135 | 454 | 692 | 138 |
| 28 | 207 | 330 | 203 | 233 | 346 | 236 | 181 | 232 | 121 | 595 | 474 | 134 |
| 29 | 217 | 689 | 202 | 231 | --- | 232 | 176 | 214 | 112 | 465 | 341 | 131 |
| 30 | 222 | 348 | 201 | 220 | --- | 227 | 168 | 205 | 137 | 295 | 323 | 131 |
| 31 | 206 | --- | 226 | 257 | --- | 221 | --- | 192 | --- | 247 | 304 | --- |
| TOTAL | 6836 | 7030 | 7353 | 12331 | 13830 | 8124 | 6045 | 8221 | 4987 | 6825 | 26875 | 5252 |
| MEAN | 221 | 234 | 237 | 398 | 494 | 262 | 202 | 265 | 166 | 220 | 867 | 175 |
| MAX | 526 | 689 | 412 | 2590 | 1750 | 424 | 275 | 1240 | 285 | 595 | 10600 | 250 |
| MIN | 174 | 189 | 200 | 150 | 276 | 219 | 168 | 142 | 112 | 99 | 131 | 131 |
| CFSM | .63 | .67 | .68 | 1.14 | 1.41 | .75 | .58 | .76 | .47 | .63 | 2.48 | .50 |
| IN. | .73 | .75 | .78 | 1.31 | 1.47 | .86 | .64 | .87 | .53 | .73 | 2.86 | .56 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 146312 | MEAN | 400 | MAX | 4950 | MIN | 155 | CFSM | 1.14 | IN. | 15.55 |
| WTR YR 1985 | TOTAL | 113709 | MEAN | 312 | MAX | 10600 | MIN | 99 | CFSM | .89 | IN. | 12.09 |

## 02059400 LEESVILLE LAKE NEAR LEESVILLE, VA

**LOCATION.**--Lat 37°05'35", long 79°24'09", Campbell County, Hydrologic Unit 03010101, at Leesville Dam on Roanoke (Staunton) River, 2.0 mi south of Leesville, 3.5 mi upstream from Goose Creek, and at mile 296.

**DRAINAGE AREA.**--1,505 mi².

**PERIOD OF RECORD.**--September 1962 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to June 6, 1963, nonrecording gage at same site and datum.

**REMARKS.**--Reservoir is formed by concrete dam. Spillway, with crest at elevation 578.0 ft, is equipped with 4 radial gates 35 ft high by 50 ft wide. Storage began on Sept. 29, 1962, during construction, and water in reservoir first reached minimum power pool, elevation, 600.0 ft, on Mar. 5, 1963. Total capacity at maximum pool elevation, 613 ft, is 94,960 acre-ft of which 75,960 acre-ft is upstream from the spillway crest; 38,200 acre-ft is normally used for power between elevations 600.0 ft, minimum power pool, and 613.0 ft. Capacity at invert of lowest penstock, elevation, 579.75 ft, is 21,010 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (see station 02057400).

**COOPERATION.**--Records were provided by the Appalachian Power Company.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum contents, 98,180 acre-ft, Feb. 1, 1965, elevation, 614.0 ft; minimum (after first filling to minimum power pool), 39,880 acre-ft, Mar. 19, 1963, elevation, 592.0 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum contents, 94,960 acre-ft, Oct. 16, Sept. 3, 4, 7, elevation, 613.0 ft; minimum, 57,470 acre-ft, Nov. 9, elevation, 600.1 ft.

### MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 604.9 | 70,330 | - |
| Oct. 31 | 606.9 | 76,190 | +5,860 |
| Nov. 30 | 610.0 | 85,300 | +9,110 |
| Dec. 31 | 601.9 | 62,290 | -23,010 |
| CAL YR 1984 | - | - | -19,190 |
| Jan. 31 | 602.8 | 64,700 | +2,410 |
| Feb. 28 | 610.3 | 86,270 | +21,570 |
| Mar. 31 | 605.0 | 70,600 | -15,670 |
| Apr. 30 | 603.9 | 67,650 | -2,950 |
| May 31 | 611.2 | 89,160 | +21,510 |
| June 30 | 603.1 | 65,510 | -23,650 |
| July 31 | 605.0 | 70,600 | +5,090 |
| Aug. 31 | 606.5 | 75,010 | +4,410 |
| Sept. 30 | 602.1 | 62,830 | -12,180 |
| WTR YR 1985 | - | - | -7,500 |

## 02059500 GOOSE CREEK NEAR HUDDLESTON, VA

LOCATION.--Lat 37°10'23", long 79°31'14", Bedford County, Hydrologic Unit 03010101, on left bank 0.3 mi upstream from Haden Bridge on State Highway 732, 0.4 mi upstream from Rockcastle Creek, and 3.5 mi northwest of Huddleston.

DRAINAGE AREA.--186 $mi^2$.

PERIOD OF RECORD.--March 1925 to August 1928 (gage heights only), September 1930 to current year.

REVISED RECORDS.--WSP 892: 1933, 1935(M), 1939. WSP 972: 1931-32(M), 1934(M), 1935-38, 1940, 1941(M). WSP 1082: 1940(P). WSP 1142: 1938-40(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 592.91 ft above National Geodetic Vertical Datum of 1929. Mar. 15, 1925, to Aug. 4, 1928, nonrecording gage at site 1,300 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Jan. 14, 22-30 and Feb. 10. Records good except those for periods with ice effect, Jan. 14, 22-30 and Feb. 10, which are fair. Prior to October 1954, diurnal fluctuation at low flow caused by mill upstream from station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--55 years, 177 $ft^3/s$, 12.79 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 $ft^3/s$, Oct. 19, 1937, gage height, 25.75 ft, from floodmarks, from rating curve extended above 11,000 $ft^3/s$ on basis of slope-area measurements at gage heights 19.25 ft, 24.1 ft, and 24.89 ft; minimum, 3 $ft^3/s$, Aug. 31, 1932, Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1130 | *3,720 | *10.17 | Aug. 25 | 2000 | 2,580 | 7.90 |

Minimum discharge, 16 $ft^3/s$, Jan. 21, gage height, 0.85 ft, result of freezeup; minimum daily, 47 $ft^3/s$, Sept. 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 226 | 78 | 141 | 122 | 605 | 143 | 140 | 80 | 98 | 84 | 115 | 105 |
| 2 | 139 | 78 | 124 | 121 | 1130 | 141 | 132 | 83 | 86 | 103 | 107 | 99 |
| 3 | 102 | 74 | 117 | 403 | 619 | 134 | 129 | 105 | 86 | 90 | 79 | 92 |
| 4 | 93 | 80 | 107 | 829 | 377 | 129 | 129 | 89 | 85 | 67 | 64 | 86 |
| 5 | 90 | 146 | 108 | 487 | 273 | 128 | 126 | 82 | 89 | 59 | 59 | 80 |
| 6 | 86 | 121 | 151 | 311 | 224 | 118 | 129 | 78 | 92 | 57 | 58 | 76 |
| 7 | 86 | 94 | 134 | 233 | 189 | 115 | 127 | 77 | 88 | 56 | 67 | 74 |
| 8 | 86 | 86 | 126 | 191 | 151 | 115 | 130 | 76 | 97 | 52 | 78 | 71 |
| 9 | 90 | 85 | 119 | 165 | 124 | 118 | 123 | 73 | 81 | 49 | 93 | 69 |
| 10 | 89 | 83 | 111 | 150 | 120 | 112 | 115 | 71 | 73 | 101 | 70 | 68 |
| 11 | 86 | 86 | 112 | 142 | 136 | 113 | 113 | 73 | 96 | 195 | 58 | 66 |
| 12 | 82 | 83 | 105 | 134 | 906 | 117 | 110 | 75 | 151 | 77 | 54 | 69 |
| 13 | 79 | 78 | 103 | 126 | 578 | 106 | 106 | 84 | 91 | 161 | 51 | 69 |
| 14 | 77 | 76 | 100 | 120 | 355 | 106 | 102 | 73 | 74 | 165 | 50 | 61 |
| 15 | 77 | 76 | 99 | 117 | 263 | 103 | 102 | 68 | 70 | 81 | 49 | 60 |
| 16 | 78 | 78 | 98 | 101 | 209 | 101 | 130 | 105 | 75 | 70 | 49 | 60 |
| 17 | 78 | 74 | 98 | 130 | 184 | 102 | 130 | 88 | 90 | 128 | 69 | 59 |
| 18 | 80 | 75 | 97 | 128 | 164 | 98 | 113 | 81 | 72 | 78 | 1770 | 58 |
| 19 | 79 | 106 | 98 | 121 | 156 | 96 | 107 | 69 | 65 | 59 | 582 | 57 |
| 20 | 78 | 109 | 97 | 109 | 149 | 96 | 103 | 65 | 61 | 55 | 252 | 56 |
| 21 | 77 | 85 | 116 | 59 | 140 | 95 | 98 | 71 | 58 | 50 | 214 | 57 |
| 22 | 77 | 80 | 138 | 85 | 137 | 107 | 96 | 87 | 57 | 52 | 149 | 58 |
| 23 | 121 | 81 | 119 | 80 | 135 | 202 | 95 | 157 | 61 | 58 | 118 | 62 |
| 24 | 108 | 81 | 110 | 79 | 134 | 177 | 93 | 550 | 101 | 50 | 120 | 59 |
| 25 | 90 | 79 | 109 | 80 | 132 | 169 | 115 | 529 | 60 | 80 | 645 | 56 |
| 26 | 84 | 78 | 100 | 82 | 202 | 150 | 98 | 250 | 55 | 154 | 598 | 52 |
| 27 | 82 | 77 | 99 | 84 | 175 | 143 | 93 | 166 | 52 | 108 | 348 | 50 |
| 28 | 81 | 180 | 99 | 87 | 152 | 139 | 94 | 136 | 51 | 104 | 215 | 48 |
| 29 | 83 | 306 | 99 | 90 | --- | 138 | 88 | 120 | 51 | 92 | 153 | 48 |
| 30 | 80 | 170 | 98 | 100 | --- | 135 | 83 | 105 | 54 | 76 | 129 | 47 |
| 31 | 78 | --- | 121 | 126 | --- | 132 | --- | 104 | --- | 67 | 122 | --- |
| TOTAL | 2842 | 2983 | 3453 | 5192 | 8119 | 3878 | 3349 | 3870 | 2320 | 2678 | 6585 | 1972 |
| MEAN | 91.7 | 99.4 | 111 | 167 | 290 | 125 | 112 | 125 | 77.3 | 86.4 | 212 | 65.7 |
| MAX | 226 | 306 | 151 | 829 | 1130 | 202 | 140 | 550 | 151 | 195 | 1770 | 105 |
| MIN | 77 | 74 | 97 | 59 | 120 | 95 | 83 | 65 | 51 | 49 | 49 | 47 |
| CFSM | .49 | .53 | .59 | .89 | 1.54 | .66 | .60 | .66 | .41 | .46 | 1.13 | .35 |
| IN. | .56 | .59 | .68 | 1.03 | 1.61 | .77 | .66 | .77 | .46 | .53 | 1.30 | .39 |

CAL YR 1984 TOTAL 84605 MEAN 231 MAX 2930 MIN 70 CFSM 1.23 IN. 16.74
WTR YR 1985 TOTAL 47241 MEAN 129 MAX 1770 MIN 47 CFSM .69 IN. 9.35

## 02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA

LOCATION.--Lat 37°06'16", long 79°17'44", Pittsylvania County, Hydrologic Unit 03010101, on right bank 12 ft upstream from bridge on alternate U.S. Highway 29, 0.3 mi south of Altavista, 0.3 mi downstream from Sycamore Creek, 3.5 mi upstream from Big Otter River, and at mile 286.5.

DRAINAGE AREA.--1,789 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1930 to current year.

REVISED RECORDS.--WSP 892: 1938(M). WSP 972: 1931-33. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.10 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1951, on left bank 50 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 9.5 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 27.5 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke.

AVERAGE DISCHARGE.--55 years, 1,786 ft$^3$/s, 13.56 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft$^3$/s, Aug. 15, 1940, gage height, 40.08 ft, from floodmark, from rating curve extended above 52,000 ft$^3$/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers and records for other stations in Roanoke River basin; minimum, 13 ft$^3$/s, Jan. 30, 1966; minimum daily, 39 ft$^3$/s, July 10, 1966; minimum gage height, 1.53 ft, Jan. 2, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,600 ft$^3$/s, Aug. 18, gage height, 19.51 ft; minimum, 117 ft$^3$/s, Jan. 20, gage height, 1.83 ft, result of freezeup; minimum daily, 142 ft$^3$/s, Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1150 | 1000 | 327 | 299 | 1470 | 2970 | 1770 | 1260 | 670 | 940 | 986 | 236 |
| 2 | 1120 | 1120 | 221 | 1220 | 2010 | 575 | 1570 | 1250 | 390 | 936 | 1010 | 217 |
| 3 | 1050 | 276 | 1110 | 1490 | 3330 | 260 | 1180 | 1220 | 894 | 1120 | 307 | 1180 |
| 4 | 1050 | 205 | 1070 | 6820 | 5290 | 2850 | 1030 | 1170 | 892 | 299 | 190 | 1120 |
| 5 | 1120 | 1030 | 1280 | 5400 | 3450 | 1680 | 1010 | 1220 | 1560 | 1400 | 958 | 1090 |
| 6 | 272 | 1090 | 1210 | 915 | 2580 | 1200 | 309 | 1230 | 480 | 323 | 902 | 1110 |
| 7 | 187 | 997 | 808 | 2450 | 2170 | 1070 | 224 | 1200 | 733 | 180 | 897 | 267 |
| 8 | 982 | 1070 | 362 | 2980 | 2000 | 1510 | 1000 | 1200 | 270 | 719 | 961 | 170 |
| 9 | 995 | 1070 | 270 | 1810 | 387 | 376 | 1000 | 1240 | 567 | 887 | 1080 | 980 |
| 10 | 1000 | 280 | 1050 | 1120 | 278 | 223 | 1050 | 1250 | 896 | 1190 | 319 | 951 |
| 11 | 1030 | 216 | 1050 | 820 | 1080 | 1070 | 854 | 1270 | 911 | 856 | 184 | 951 |
| 12 | 983 | 1070 | 1040 | 292 | 5710 | 1540 | 866 | 1260 | 978 | 964 | 947 | 947 |
| 13 | 270 | 1040 | 1050 | 215 | 6350 | 1540 | 711 | 1190 | 1180 | 553 | 906 | 888 |
| 14 | 256 | 967 | 1130 | 987 | 2760 | 1400 | 499 | 974 | 1130 | 515 | 945 | 257 |
| 15 | 1120 | 1020 | 287 | 977 | 1940 | 1140 | 1060 | 1140 | 273 | 1060 | 931 | 147 |
| 16 | 1020 | 961 | 230 | 950 | 491 | 286 | 846 | 1210 | 175 | 1000 | 919 | 865 |
| 17 | 1050 | 260 | 1030 | 1160 | 345 | 192 | 918 | 1280 | 962 | 1030 | 628 | 907 |
| 18 | 999 | 264 | 1030 | 1120 | 1150 | 1430 | 1040 | 1230 | 887 | 971 | 15000 | 901 |
| 19 | 988 | 1070 | 992 | 293 | 2130 | 1000 | 1120 | 1280 | 901 | 733 | 18800 | 917 |
| 20 | 267 | 1480 | 1040 | 303 | 1680 | 1030 | 730 | 1290 | 902 | 259 | 14200 | 872 |
| 21 | 223 | 1550 | 1270 | 2940 | 1160 | 983 | 636 | 1290 | 904 | 216 | 6640 | 243 |
| 22 | 1070 | 526 | 344 | 3150 | 1560 | 1010 | 1100 | 1290 | 245 | 987 | 5910 | 186 |
| 23 | 1050 | 544 | 238 | 699 | 492 | 439 | 1340 | 1410 | 191 | 971 | 1480 | 990 |
| 24 | 1150 | 310 | 981 | 466 | 245 | 417 | 1280 | 1320 | 975 | 989 | 305 | 878 |
| 25 | 1040 | 237 | 219 | 489 | 2950 | 1160 | 1330 | 1420 | 927 | 1200 | 306 | 885 |
| 26 | 1360 | 1010 | 1020 | 284 | 2300 | 1500 | 1290 | 1140 | 938 | 817 | 6600 | 883 |
| 27 | 286 | 983 | 1520 | 261 | 2000 | 1760 | 1230 | 1250 | 833 | 361 | 4940 | 927 |
| 28 | 194 | 1100 | 1470 | 1050 | 2370 | 1730 | 1230 | 2660 | 993 | 265 | 2870 | 225 |
| 29 | 1000 | 1380 | 170 | 1040 | --- | 3020 | 1270 | 2340 | 266 | 1070 | 2340 | 142 |
| 30 | 1010 | 1440 | 173 | 1040 | --- | 412 | 1260 | 1280 | 157 | 968 | 2770 | 934 |
| 31 | 1000 | --- | 1250 | 1210 | --- | 260 | --- | 3420 | --- | 948 | 1110 | --- |
| TOTAL | 26292 | 25566 | 25242 | 44250 | 59678 | 36033 | 30753 | 43184 | 22080 | 24727 | 96341 | 21266 |
| MEAN | 848 | 852 | 814 | 1427 | 2131 | 1162 | 1025 | 1393 | 736 | 798 | 3108 | 709 |
| MAX | 1360 | 1550 | 1520 | 6820 | 6350 | 3020 | 1770 | 3420 | 1560 | 1400 | 18800 | 1180 |
| MIN | 187 | 205 | 170 | 215 | 245 | 192 | 224 | 974 | 157 | 180 | 184 | 142 |
| (*) | -71 | -87 | +91 | -62 | +316 | +43 | -84 | -16 | -190 | +182 | +5 | -205 |
| MEAN† | 777 | 765 | 905 | 1365 | 2447 | 1205 | 941 | 1377 | 546 | 980 | 3113 | 504 |
| CFSM† | .43 | .43 | .51 | .76 | 1.37 | .67 | .53 | .77 | .31 | .55 | 1.74 | .28 |
| IN.† | .50 | .48 | .58 | .88 | 1.42 | .78 | .59 | .89 | .34 | .63 | 2.01 | .31 |

CAL YR 1984 TOTAL 712998 MEAN 1948 MAX 14700 MIN 170 MEAN† 1925 CFSM† 1.08 IN.† 14.65
WTR YR 1985 TOTAL 455412 MEAN 1248 MAX 18800 MIN 142 MEAN† 1241 CFSM† .69 IN.† 9.42

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.

† Adjusted for change in contents.

## 02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

### WATER-QUALITY RECORDS

**PERIOD OF RECORD.**--Water years 1951, 1953-56, 1968 to current year.

**PERIOD OF DAILY RECORD.**--
SPECIFIC CONDUCTANCE: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.
WATER TEMPERATURE: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: February 1953 to September 1956.

**EXTREMES FOR PERIOD OF DAILY RECORD.**--
SPECIFIC CONDUCTANCE: Maximum daily, 580 microsiemens, Jan. 17, 1969; minimum daily, 54 microsiemens, Aug. 18, 1955.
WATER TEMPERATURE: Maximum daily, 30.0°C, Aug. 10, 1951, Aug. 11, 1980; minimum daily, 0.0°C on many days during winter periods.

**EXTREMES FOR CURRENT YEAR.**--
SPECIFIC CONDUCTANCE: Maximum daily, 200 microsiemens, June 27, July 9; minimum daily, 79 microsiemens, Jan. 6.
WATER TEMPERATURE: Maximum daily, 26.0°C, July 9, 15, 21, Sept. 8; minimum daily, 1.0°C Jan. 21.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | SPECIFIC CONDUCTANCE LAB (US/CM) | PH (STANDARD UNITS) | PH LAB (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | COLOR (PLATINUM-COBALT UNITS) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT 11... | 10:15 | 415 | 160 | 159 | 7.7 | 7.5 | 17.5 | 756 | 5 | 9.6 |
| NOV 15... | 10:35 | 459 | 165 | 161 | 7.3 | 7.7 | 10.5 | 752 | 10 | 10.6 |
| DEC 19... | 09:30 | 424 | 152 | 154 | 7.5 | 7.6 | 11.0 | 749 | 15 | 10.4 |
| FEB 06... | 09:30 | 866 | 130 | 123 | 7.3 | 7.4 | 2.5 | 741 | 25 | 13.0 |
| MAR 20... | 08:45 | 485 | 147 | 152 | 7.4 | 7.6 | 8.0 | 750 | 15 | 11.4 |
| MAY 08... | 10:30 | 1210 | 170 | 167 | -- | 7.4 | 16.0 | 750 | 20 | 9.8 |
| JUN 19... | 10:00 | 401 | 195 | 191 | 7.7 | 7.4 | 20.5 | 742 | 15 | 8.7 |
| AUG 07... | 10:15 | 424 | 191 | 187 | 7.4 | 7.6 | 21.5 | 748 | 20 | 8.0 |
| SEP 18... | 08:45 | 495 | 168 | 171 | 7.6 | 7.8 | 17.5 | 756 | 10 | 8.3 |

| DATE | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) | HARDNESS NONCARBONATE (MG/L AS CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY LAB (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 11... | 101 | 57 | 57 | 14 | 5.4 | 8.4 | 2.0 | 54 | 13 |
| NOV 15... | 96 | 58 | 58 | 14 | 5.6 | 9.6 | 1.8 | 55 | 12 |
| DEC 19... | 96 | 58 | 58 | 14 | 5.5 | 7.7 | 1.6 | 53 | 11 |
| FEB 06... | 98 | 46 | 46 | 11 | 4.6 | 6.2 | 1.8 | 41 | 11 |
| MAR 20... | 98 | 54 | 54 | 13 | 5.2 | 8.0 | 1.7 | 49 | 12 |
| MAY 08... | 101 | 62 | 62 | 15 | 6.0 | 7.4 | 1.9 | 57 | 12 |
| JUN 19... | 99 | 63 | 63 | 15 | 6.1 | 12 | 1.9 | 61 | 17 |
| AUG 07... | 92 | 63 | 63 | 15 | 6.2 | 12 | 2.3 | 60 | 16 |
| SEP 18... | 88 | 60 | 60 | 14 | 6.0 | 8.9 | 2.4 | 56 | 14 |

## 02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 11... | 8.4 | 0.1 | 8.6 | 96 | 93 | <0.01 | 0.14 | 0.14 | 32 |
| NOV | | | | | | | | | |
| 15... | 11 | <0.1 | 8.5 | 93 | 96 | <0.01 | 0.17 | 0.16 | 69 |
| DEC | | | | | | | | | |
| 19... | 7.8 | 0.1 | 8.4 | 87 | 88 | <0.01 | 0.25 | 0.07 | 40 |
| FEB | | | | | | | | | |
| 06... | 8.6 | <0.1 | 9.7 | 73 | 78 | 0.06 | 0.30 | 0.06 | 72 |
| MAR | | | | | | | | | |
| 20... | 8.0 | 0.1 | 8.8 | 102 | 87 | <0.01 | 0.17 | 0.10 | 44 |
| MAY | | | | | | | | | |
| 08... | 8.3 | 0.1 | 6.7 | 98 | 92 | <0.01 | 0.19 | 0.03 | 16 |
| JUN | | | | | | | | | |
| 19... | 10 | 0.1 | 6.8 | 121 | 110 | <0.01 | 0.16 | 0.09 | 33 |
| AUG | | | | | | | | | |
| 07... | 11 | <0.1 | 7.2 | 120 | 110 | <0.01 | 0.20 | 0.16 | 38 |
| SEP | | | | | | | | | |
| 18... | 11 | 0.2 | 6.9 | 112 | 97 | <0.01 | 0.23 | 0.07 | 32 |

### SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 160 | 165 | 140 | 140 | 125 | 142 | 160 | 160 | 170 | 160 | 179 | 142 |
| 2 | 130 | 165 | 150 | 140 | 125 | 142 | 160 | 160 | 180 | 170 | 176 | 155 |
| 3 | 145 | 165 | 155 | 130 | 120 | 135 | 160 | 160 | 180 | 160 | 176 | 150 |
| 4 | 145 | 160 | 170 | 80 | 122 | 135 | 160 | 159 | 182 | 158 | --- | 142 |
| 5 | 150 | 160 | 160 | 148 | 135 | 142 | 162 | 170 | 168 | 160 | --- | 158 |
| 6 | 142 | 159 | 145 | 79 | 142 | 148 | 160 | 160 | 180 | 158 | --- | 158 |
| 7 | 160 | 162 | 160 | 115 | 142 | 140 | 145 | 163 | 170 | 160 | --- | 152 |
| 8 | 142 | 160 | 160 | 142 | 145 | 140 | 148 | 163 | 198 | 180 | --- | 160 |
| 9 | 160 | 170 | 160 | 150 | 142 | 159 | 150 | 168 | 170 | 200 | 162 | 150 |
| 10 | 160 | 165 | 145 | 142 | 138 | 141 | 150 | 170 | 180 | 190 | 170 | 162 |
| 11 | 162 | 162 | 150 | 140 | 140 | 140 | 155 | 170 | 162 | 178 | 170 | 160 |
| 12 | 162 | 162 | 145 | 140 | 122 | 140 | 156 | 170 | 185 | 180 | --- | 159 |
| 13 | 162 | 168 | 158 | 140 | 140 | 150 | 158 | 170 | 170 | 180 | 180 | 175 |
| 14 | 162 | 162 | --- | 140 | 125 | 150 | 158 | 170 | 182 | 158 | 160 | 175 |
| 15 | 160 | 162 | --- | 135 | 122 | 158 | 155 | 170 | 182 | 160 | 180 | 156 |
| 16 | 162 | 164 | 155 | 150 | 122 | 155 | 155 | 170 | 162 | 178 | 180 | 155 |
| 17 | 164 | 165 | 150 | 140 | 138 | 158 | 150 | 170 | 162 | 179 | 105 | 162 |
| 18 | 160 | 150 | 158 | 140 | 140 | 142 | 160 | 170 | 190 | 170 | 153 | 167 |
| 19 | 160 | 158 | 155 | 142 | 130 | 150 | --- | 170 | 190 | 180 | 150 | 165 |
| 20 | 160 | 158 | 158 | 155 | 140 | 145 | 155 | 178 | 192 | 180 | 105 | 163 |
| 21 | 170 | 160 | 158 | 150 | 142 | 150 | 158 | 180 | 196 | 175 | 108 | 163 |
| 22 | 160 | --- | 160 | 155 | 138 | 148 | 158 | 175 | 190 | 175 | 135 | 158 |
| 23 | 162 | 160 | 160 | 142 | 142 | 140 | 158 | 150 | 180 | 178 | 130 | 156 |
| 24 | 150 | 155 | 125 | 142 | 138 | 150 | 162 | 140 | 182 | 178 | 135 | 164 |
| 25 | 158 | 162 | --- | 140 | 130 | 140 | 160 | 140 | 198 | 158 | 137 | 170 |
| 26 | 160 | 162 | 123 | 140 | 130 | 140 | 162 | 120 | 190 | 158 | 135 | 172 |
| 27 | 165 | 160 | 155 | 130 | 130 | 160 | 162 | 170 | 200 | 158 | 92 | 157 |
| 28 | 140 | 160 | 158 | 142 | 142 | 158 | 162 | 170 | 185 | 140 | 138 | 157 |
| 29 | 160 | 122 | 140 | 140 | --- | 156 | 160 | 180 | 170 | 140 | 142 | 145 |
| 30 | 160 | 145 | 140 | 140 | --- | 156 | 162 | 182 | 165 | 178 | 175 | 143 |
| 31 | 160 | --- | 125 | 140 | --- | 160 | --- | 180 | --- | 180 | 142 | --- |
| MEAN | 157 | 160 | 151 | 137 | 134 | 147 | 157 | 165 | 180 | 170 | 149 | 158 |

WTR YR 1985 MEAN 156 MAX 200 MIN 79

## 02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19.0 | 20.0 | 10.0 | 12.0 | 4.0 | 8.5 | 13.0 | 18.0 | 24.0 | 19.5 | 24.0 | 21.0 |
| 2 | 15.0 | 20.0 | 10.0 | 12.0 | 3.5 | 9.0 | 12.5 | 18.0 | 23.0 | 19.0 | 24.0 | 22.0 |
| 3 | 15.0 | 19.0 | 9.0 | 9.5 | 3.5 | 9.5 | 10.0 | 16.5 | 21.5 | 19.5 | 21.5 | 23.0 |
| 4 | 16.0 | 18.0 | 11.5 | 8.0 | 3.5 | 9.0 | 14.5 | 17.5 | 21.0 | 22.0 | --- | 24.0 |
| 5 | 18.0 | 17.0 | 9.0 | 10.0 | 3.0 | 9.0 | 15.0 | 17.0 | 21.5 | 23.0 | --- | 24.5 |
| 6 | 18.0 | 15.5 | 8.5 | 7.0 | 5.0 | 8.0 | 14.0 | 17.0 | 22.0 | 23.5 | --- | 25.0 |
| 7 | 19.0 | 17.5 | 6.0 | 6.0 | 3.5 | 7.0 | 12.0 | 18.0 | 19.5 | 25.0 | --- | 24.5 |
| 8 | 19.0 | 17.5 | 6.5 | 8.0 | 2.5 | 8.0 | 10.0 | 17.0 | 23.5 | 23.0 | --- | 26.0 |
| 9 | 19.0 | 13.0 | 6.5 | 7.5 | 2.0 | 10.0 | 10.0 | 16.0 | 23.0 | 26.0 | 25.0 | 22.5 |
| 10 | 20.0 | 14.0 | 6.5 | 7.0 | 2.0 | 9.5 | 9.0 | 17.0 | 21.0 | 22.0 | 22.0 | 25.0 |
| 11 | 20.0 | 15.0 | 7.0 | 5.5 | 2.5 | 10.0 | 12.0 | 19.0 | 22.5 | 21.0 | 23.0 | 23.0 |
| 12 | 20.0 | 15.0 | 8.0 | 4.0 | 4.0 | 12.0 | 12.0 | 19.0 | 22.0 | 21.5 | 24.0 | 21.0 |
| 13 | 20.0 | 14.5 | 8.0 | 4.0 | 4.0 | 10.5 | 13.0 | 21.0 | 19.5 | 23.0 | 23.0 | 19.0 |
| 14 | 20.0 | 13.0 | 9.0 | 3.0 | 3.0 | 10.0 | 14.0 | 18.5 | 21.0 | 25.0 | 25.5 | 19.5 |
| 15 | 20.5 | 11.5 | --- | 3.5 | 2.5 | 10.5 | 14.5 | 18.0 | 20.0 | 26.0 | 24.5 | 20.0 |
| 16 | 21.0 | 13.0 | 10.0 | 7.0 | 3.5 | 9.0 | 15.0 | 20.0 | 21.0 | 23.0 | 24.5 | 21.0 |
| 17 | 19.5 | 12.0 | 11.0 | 5.0 | 3.0 | 9.0 | 15.0 | 18.5 | 21.5 | 22.5 | 22.0 | 18.0 |
| 18 | 20.5 | 12.0 | 12.0 | 5.0 | 4.0 | 9.0 | 13.5 | 17.0 | 21.5 | 22.0 | 21.5 | 18.0 |
| 19 | 20.0 | 11.0 | 12.0 | 2.5 | 5.5 | 7.5 | 17.5 | 17.0 | 21.0 | 24.0 | 22.0 | 19.0 |
| 20 | 21.0 | 10.0 | 11.5 | 2.0 | 4.5 | 9.0 | 18.0 | 18.0 | 20.0 | 25.0 | 22.0 | 19.5 |
| 21 | 21.5 | 9.5 | 11.0 | 1.0 | 7.0 | 10.5 | 18.0 | 19.5 | 19.0 | 26.0 | 22.0 | 20.0 |
| 22 | 19.0 | --- | 11.5 | 3.0 | 6.0 | 9.0 | 17.5 | 19.0 | 20.0 | 23.0 | 20.5 | 20.5 |
| 23 | 21.0 | 8.0 | 11.5 | 3.0 | 7.0 | 8.0 | 17.5 | 18.5 | 21.5 | 22.5 | 20.0 | 22.0 |
| 24 | 20.0 | 8.0 | 8.0 | 2.5 | 9.0 | 8.5 | 16.0 | 17.0 | 22.0 | 22.0 | 20.0 | 20.5 |
| 25 | 19.0 | 8.0 | --- | 3.0 | 12.5 | 10.5 | 15.0 | 16.0 | 22.0 | 22.0 | 20.5 | 21.0 |
| 26 | 20.5 | 9.0 | 6.0 | 2.5 | 8.5 | 9.5 | 15.0 | 19.5 | 21.5 | 25.0 | 21.5 | 20.5 |
| 27 | 20.5 | 9.5 | 8.0 | 2.0 | 8.0 | 12.0 | 16.5 | 20.0 | 20.0 | 23.0 | 22.0 | 21.5 |
| 28 | 21.0 | 12.5 | 12.0 | 4.5 | 8.0 | 12.0 | 16.5 | 19.5 | 20.5 | 21.0 | 21.5 | 20.0 |
| 29 | 21.5 | 9.5 | 12.5 | 3.5 | --- | 13.5 | 16.0 | 19.0 | 24.0 | 21.5 | 22.0 | 18.0 |
| 30 | 20.0 | 9.0 | 12.0 | 2.5 | --- | 14.0 | 14.0 | 19.5 | 21.0 | 24.0 | 22.5 | 18.0 |
| 31 | 19.5 | --- | 12.5 | 4.0 | --- | 14.0 | --- | 21.5 | --- | 25.0 | 22.0 | --- |
| MEAN | 19.5 | 13.0 | 9.5 | 5.0 | 5.0 | 10.0 | 14.0 | 18.5 | 21.5 | 23.0 | 22.5 | 21.5 |

WTR YR 1985 MEAN 15.0 MAX 26.0 MIN 1.0

## 02061500 BIG OTTER RIVER NEAR EVINGTON, VA

**LOCATION.**--Lat 37°12'30", long 79°18'14", Campbell County, Hydrologic Unit 03010101, on right bank 60 ft upstream from bridge on State Highway 682, 2.0 mi southwest of Evington, and 2.1 mi upstream from Flat Creek.

**DRAINAGE AREA.**--320 mi².

**PERIOD OF RECORD.**--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1965, published as Otter River near Evington.

**REVISED RECORDS.**--WSP 852: 1937. WSP 892: 1938-39(M). WSP 972: 1937-39. WSP 1032: 1940. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 544.02 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 22-30, Feb. 9, 10, Apr. 11-15, May 8-11, 16-18, June 21-29, July 2, 11-19, 23, 24, Aug. 5-16, and Aug. 30 to Sept. 30. Records good except those for periods of doubtful gage-height record, Apr. 11-15, May 8-11, 16-18, June 21-29, July 2, 11-19, 23, 24, Aug. 5-16, and Aug. 30 to Sept. 30, and periods with ice effect, Jan. 22-30 and Feb. 9, 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--49 years, 330 ft³/s, 14.00 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 27,500 ft³/s, Oct. 19, 1937, Aug. 19, 1939, gage height, 23.1 ft, from rating curve extended above 7,000 ft³/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River basin; minimum, 7.5 ft³/s, Sept. 14, 1966.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 4,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1600 | *5,170 | *12.92 | No other peak equal to or greater than base discharge. | | | |

Minimum daily discharge, 75 ft³/s, Sept. 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 482 | 184 | 327 | 264 | 1340 | 323 | 254 | 175 | 216 | 102 | 215 | 210 |
| 2 | 312 | 184 | 285 | 248 | 2330 | 318 | 239 | 174 | 195 | 154 | 179 | 190 |
| 3 | 219 | 175 | 272 | 739 | 1110 | 303 | 229 | 202 | 186 | 141 | 142 | 175 |
| 4 | 200 | 171 | 254 | 1620 | 618 | 292 | 226 | 215 | 178 | 126 | 115 | 165 |
| 5 | 191 | 235 | 246 | 897 | 490 | 290 | 222 | 180 | 178 | 111 | 104 | 155 |
| 6 | 183 | 239 | 391 | 567 | 445 | 275 | 221 | 173 | 191 | 103 | 100 | 150 |
| 7 | 177 | 199 | 335 | 468 | 398 | 265 | 215 | 165 | 175 | 100 | 110 | 140 |
| 8 | 177 | 194 | 291 | 407 | 342 | 270 | 222 | 155 | 182 | 95 | 120 | 130 |
| 9 | 178 | 191 | 264 | 361 | 320 | 281 | 214 | 150 | 171 | 87 | 150 | 128 |
| 10 | 175 | 190 | 250 | 334 | 270 | 265 | 206 | 149 | 155 | 83 | 125 | 123 |
| 11 | 172 | 190 | 247 | 318 | 317 | 260 | 200 | 155 | 150 | 200 | 115 | 120 |
| 12 | 168 | 186 | 236 | 298 | 1500 | 269 | 195 | 164 | 343 | 125 | 105 | 130 |
| 13 | 167 | 176 | 230 | 285 | 877 | 247 | 190 | 368 | 188 | 180 | 95 | 130 |
| 14 | 166 | 173 | 223 | 282 | 532 | 243 | 188 | 228 | 150 | 250 | 90 | 120 |
| 15 | 164 | 172 | 217 | 262 | 444 | 238 | 185 | 176 | 141 | 180 | 85 | 115 |
| 16 | 165 | 173 | 213 | 267 | 391 | 232 | 248 | 200 | 140 | 125 | 80 | 110 |
| 17 | 168 | 170 | 212 | 289 | 366 | 233 | 311 | 178 | 172 | 170 | 86 | 105 |
| 18 | 189 | 167 | 212 | 276 | 344 | 226 | 232 | 170 | 149 | 110 | 2760 | 104 |
| 19 | 186 | 203 | 210 | 266 | 336 | 218 | 213 | 162 | 131 | 100 | 1270 | 103 |
| 20 | 177 | 254 | 208 | 246 | 324 | 220 | 203 | 149 | 121 | 85 | 522 | 102 |
| 21 | 172 | 196 | 233 | 120 | 308 | 217 | 196 | 149 | 110 | 81 | 589 | 99 |
| 22 | 175 | 182 | 307 | 170 | 300 | 231 | 189 | 151 | 105 | 76 | 429 | 108 |
| 23 | 321 | 178 | 260 | 160 | 298 | 405 | 185 | 335 | 108 | 88 | 344 | 110 |
| 24 | 300 | 179 | 233 | 155 | 299 | 353 | 184 | 1350 | 150 | 80 | 298 | 108 |
| 25 | 232 | 178 | 229 | 160 | 298 | 325 | 212 | 1150 | 100 | 81 | 1310 | 100 |
| 26 | 210 | 175 | 213 | 165 | 437 | 285 | 201 | 511 | 95 | 216 | 1440 | 94 |
| 27 | 203 | 174 | 208 | 170 | 399 | 267 | 183 | 372 | 90 | 168 | 611 | 88 |
| 28 | 196 | 391 | 210 | 175 | 343 | 261 | 182 | 307 | 85 | 158 | 468 | 85 |
| 29 | 200 | 808 | 209 | 180 | --- | 259 | 190 | 268 | 86 | 156 | 409 | 80 |
| 30 | 195 | 399 | 206 | 200 | --- | 256 | 181 | 241 | 91 | 143 | 290 | 75 |
| 31 | 188 | --- | 249 | 279 | --- | 247 | --- | 232 | --- | 124 | 240 | --- |
| TOTAL | 6408 | 6686 | 7680 | 10628 | 15776 | 8374 | 6316 | 8754 | 4532 | 3998 | 12996 | 3652 |
| MEAN | 207 | 223 | 248 | 343 | 563 | 270 | 211 | 282 | 151 | 129 | 419 | 122 |
| MAX | 482 | 808 | 391 | 1620 | 2330 | 405 | 311 | 1350 | 343 | 250 | 2760 | 210 |
| MIN | 164 | 167 | 206 | 120 | 270 | 217 | 181 | 149 | 85 | 76 | 80 | 75 |
| CFSM | .65 | .70 | .77 | 1.07 | 1.76 | .84 | .66 | .88 | .47 | .40 | 1.31 | .38 |
| IN. | .74 | .78 | .89 | 1.24 | 1.83 | .97 | .73 | 1.02 | .53 | .46 | 1.51 | .42 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 173135 | MEAN | 473 | MAX | 6110 | MIN | 134 | CFSM 1.48 | IN. | 20.13 |
| WTR YR 1985 | TOTAL | 95800 | MEAN | 262 | MAX | 2760 | MIN | 75 | CFSM .82 | IN. | 11.14 |

## 02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA

LOCATION.--Lat 37°02'28", long 78°57'02", Campbell County, Hydrologic Unit 03010102, on left bank 1,600 ft upstream from bridge on U.S. Highway 501 at Brookneal, 2.9 mi upstream from Falling River, and at mile 255.9.

DRAINAGE AREA.--2,415 mi².

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 892: 1928(M). WSP 972: 1928-34. WSP 1303: 1924-27(M), 1929(M), 1941(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 351.96 ft above National Geodetic Vertical Datum of 1929. Apr. 30, 1923, to Aug. 29, 1929, nonrecording gage, Aug. 30, 1929, to Aug. 15, 1940, water-stage recorder, and Aug. 16 to Oct. 1, 1940, nonrecording gage at site 1,800 ft downstream at same datum. Oct. 2, 1940, to Sept. 30, 1941, nonrecording gage at site 1,600 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 40.1 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 58.1 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--62 years, 2,382 ft³/s, 13.39 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s, Aug. 15, 1940, gage height, 46.5 ft, at present site, from gage-height relation curve, from rating curve extended above 55,000 ft³/s on basis of slope-area measurement by Geological Survey, unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River basin; minimum daily, 140 ft³/s, July 25, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,700 ft³/s, Aug. 18, gage height, 30.27 ft; minimum, 265 ft³/s, July 22; minimum daily, 329 ft³/s, Sept. 30; minimum gage height, 5.49 ft, Jan. 21, July 22.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 790 | 1170 | 1580 | 1480 | 1700 | 2570 | 992 | 1470 | 3800 | 388 | 979 | 816 |
| 2 | 1630 | 1270 | 670 | 682 | 4420 | 2930 | 1920 | 1480 | 717 | 996 | 1130 | 663 |
| 3 | 1310 | 1140 | 868 | 1770 | 5420 | 769 | 1830 | 1540 | 674 | 1020 | 1050 | 675 |
| 4 | 1210 | 515 | 1350 | 4710 | 4430 | 1220 | 1320 | 1490 | 1090 | 1170 | 425 | 1400 |
| 5 | 1200 | 609 | 1300 | 9350 | 4700 | 3030 | 1290 | 1430 | 1080 | 458 | 371 | 1330 |
| 6 | 1250 | 1290 | 1590 | 5000 | 4030 | 1870 | 1130 | 1460 | 1800 | 1390 | 924 | 1290 |
| 7 | 508 | 1220 | 1740 | 1270 | 2700 | 1390 | 639 | 1430 | 674 | 444 | 911 | 1280 |
| 8 | 507 | 1180 | 1060 | 3020 | 2400 | 1390 | 816 | 1400 | 928 | 362 | 1030 | 522 |
| 9 | 1150 | 1240 | 671 | 3340 | 1910 | 1630 | 1260 | 1420 | 529 | 925 | 1060 | 526 |
| 10 | 1130 | 1170 | 872 | 2160 | 728 | 680 | 1270 | 1440 | 811 | 936 | 1100 | 1140 |
| 11 | 1150 | 538 | 1290 | 1410 | 1090 | 912 | 1210 | 1460 | 1040 | 1050 | 420 | 1100 |
| 12 | 1130 | 662 | 1280 | 1190 | 4590 | 1390 | 1150 | 1470 | 1070 | 1170 | 355 | 1100 |
| 13 | 1070 | 1200 | 1260 | 739 | 7710 | 1810 | 1090 | 1690 | 1260 | 861 | 907 | 1070 |
| 14 | 489 | 1160 | 1290 | 662 | 5970 | 1690 | 975 | 1560 | 1300 | 682 | 875 | 1020 |
| 15 | 657 | 1150 | 1150 | 1310 | 2680 | 1680 | 1090 | 1300 | 1180 | 703 | 900 | 436 |
| 16 | 1150 | 1150 | 589 | 1260 | 2020 | 1130 | 1320 | 1520 | 456 | 1010 | 902 | 383 |
| 17 | 1160 | 1090 | 771 | 1210 | 932 | 619 | 1300 | 1530 | 429 | 997 | 1000 | 1000 |
| 18 | 1180 | 504 | 1230 | 1450 | 1190 | 901 | 1380 | 1550 | 1080 | 1030 | 21600 | 1020 |
| 19 | 1160 | 750 | 1200 | 1420 | 1610 | 1510 | 1300 | 1480 | 963 | 924 | 32400 | 1020 |
| 20 | 1090 | 1320 | 1240 | 727 | 2560 | 1270 | 1250 | 1450 | 965 | 742 | 22400 | 1020 |
| 21 | 505 | 1740 | 1330 | 475 | 1880 | 1240 | 985 | 1440 | 952 | 360 | 13100 | 970 |
| 22 | 626 | 1600 | 1420 | 3190 | 1460 | 1280 | 1100 | 1510 | 950 | 377 | 7210 | 404 |
| 23 | 1220 | 685 | 722 | 3400 | 1710 | 1260 | 1510 | 2130 | 404 | 963 | 4280 | 453 |
| 24 | 1670 | 810 | 630 | 993 | 776 | 1010 | 1570 | 3070 | 469 | 948 | 1440 | 1040 |
| 25 | 1410 | 533 | 1230 | 850 | 1240 | 1160 | 1530 | 3700 | 979 | 967 | 795 | 983 |
| 26 | 1300 | 637 | 585 | 833 | 4110 | 1460 | 1570 | 2040 | 953 | 1240 | 4890 | 975 |
| 27 | 1390 | 1230 | 1260 | 670 | 2010 | 1900 | 1480 | 1770 | 960 | 968 | 8050 | 969 |
| 28 | 550 | 1260 | 1850 | 608 | 2580 | 1960 | 1460 | 1650 | 875 | 577 | 4250 | 994 |
| 29 | 573 | 2280 | 1450 | 1270 | --- | 2180 | 1480 | 2860 | 1010 | 744 | 3340 | 366 |
| 30 | 1190 | 1620 | 539 | 1280 | --- | 2730 | 1510 | 2540 | 390 | 1150 | 2940 | 329 |
| 31 | 1180 | --- | 563 | 1290 | --- | 698 | --- | 1440 | --- | 1000 | 3880 | --- |
| TOTAL | 32535 | 32723 | 34580 | 59019 | 78556 | 47269 | 38727 | 53720 | 29788 | 26552 | 144914 | 26294 |
| MEAN | 1050 | 1091 | 1115 | 1904 | 2806 | 1525 | 1291 | 1733 | 993 | 857 | 4675 | 876 |
| MAX | 1670 | 2280 | 1850 | 9350 | 7710 | 3030 | 1920 | 3700 | 3800 | 1390 | 32400 | 1400 |
| MIN | 489 | 504 | 539 | 475 | 728 | 619 | 639 | 1300 | 390 | 360 | 355 | 329 |
| (*) | -71 | -87 | +91 | -62 | +316 | +43 | -84 | -16 | -190 | +182 | +5 | -205 |
| MEAN† | 979 | 1004 | 1206 | 1842 | 3122 | 1568 | 1207 | 1717 | 803 | 1039 | 4680 | 671 |
| CFSM† | .41 | .42 | .50 | .76 | 1.29 | .65 | .50 | .71 | .33 | .43 | 1.94 | .28 |
| IN.† | .47 | .46 | .58 | .88 | 1.35 | .75 | .56 | .82 | .37 | .50 | 2.23 | .31 |

CAL YR 1984 TOTAL 1006449 MEAN 2750 MAX 28500 MIN 478 MEAN† 2727 CFSM† 1.13 IN.† 15.37
WTR YR 1985 TOTAL 604677 MEAN 1657 MAX 32400 MIN 329 MEAN† 1650 CFSM† .68 IN.† 9.28

*Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.

† Adjusted for change in contents.

## 02064000 FALLING RIVER NEAR NARUNA, VA

**LOCATION.**--Lat 37°07'36", long 78°57'36", Campbell County, Hydrologic Unit 03010102, on left bank at upstream side of bridge on State Highway 643, 2.7 mi northeast of Naruna, and 3.2 mi upstream from Little Falling River.

**DRAINAGE AREA.**--173 mi$^2$.

**PERIOD OF RECORD.**--July 1929 to January 1935, September 1941 to current year.

**REVISED RECORDS.**--WSP 1333: 1930, 1931-34(M), 1935. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 412.32 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 22-29 and Feb. 10. Records good except those for periods with ice effect, Jan. 22-29 and Feb. 10, which are fair. Small diurnal fluctuation at times during low flow, cause unknown. Prior to 1958, diurnal fluctuation caused by gristmill at Spring Mills. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--49 years (water years 1930-34, 1942-85), 149 ft$^3$/s, 11.70 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 32,600 ft$^3$/s, June 22, 1972, gage height, 29.21 ft, from rating curve extended above 7,100 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 3.0 ft$^3$/s, Oct. 9, 1932, gage height, 2.18 ft.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in August 1940 reached a stage of 26.5 ft, from floodmarks, discharge, 22,000 ft$^3$/s, by slope-area measurement.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,300 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1700 | *8,060 | *18.14 | Aug. 26 | 2215 | 2,410 | 9.35 |

Minimum discharge, 34 ft$^3$/s, July 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 141 | 61 | 99 | 101 | 748 | 124 | 88 | 59 | 65 | 56 | 74 | 127 |
| 2 | 85 | 61 | 87 | 92 | 1050 | 120 | 84 | 59 | 58 | 59 | 79 | 102 |
| 3 | 69 | 59 | 85 | 375 | 453 | 112 | 81 | 133 | 55 | 56 | 59 | 90 |
| 4 | 58 | 58 | 82 | 630 | 251 | 108 | 80 | 97 | 53 | 50 | 51 | 80 |
| 5 | 56 | 67 | 82 | 408 | 198 | 108 | 80 | 73 | 64 | 45 | 47 | 75 |
| 6 | 54 | 69 | 193 | 241 | 181 | 101 | 79 | 68 | 100 | 46 | 48 | 70 |
| 7 | 55 | 62 | 146 | 183 | 160 | 96 | 76 | 62 | 69 | 44 | 68 | 66 |
| 8 | 55 | 59 | 110 | 153 | 136 | 98 | 76 | 59 | 65 | 40 | 122 | 63 |
| 9 | 55 | 58 | 98 | 131 | 129 | 102 | 75 | 57 | 58 | 38 | 98 | 62 |
| 10 | 58 | 59 | 92 | 120 | 125 | 97 | 73 | 56 | 55 | 64 | 65 | 60 |
| 11 | 58 | 62 | 89 | 116 | 118 | 95 | 75 | 56 | 89 | 118 | 55 | 59 |
| 12 | 55 | 64 | 85 | 108 | 1070 | 98 | 76 | 63 | 89 | 54 | 49 | 56 |
| 13 | 54 | 59 | 82 | 102 | 459 | 90 | 75 | 372 | 63 | 48 | 46 | 56 |
| 14 | 54 | 57 | 81 | 100 | 248 | 90 | 76 | 124 | 52 | 92 | 44 | 54 |
| 15 | 52 | 57 | 79 | 96 | 194 | 89 | 78 | 81 | 50 | 61 | 40 | 51 |
| 16 | 53 | 58 | 79 | 90 | 165 | 86 | 127 | 136 | 52 | 51 | 40 | 51 |
| 17 | 55 | 57 | 80 | 100 | 152 | 87 | 116 | 102 | 66 | 47 | 69 | 51 |
| 18 | 58 | 57 | 79 | 102 | 141 | 85 | 89 | 89 | 55 | 43 | 4640 | 51 |
| 19 | 58 | 102 | 80 | 103 | 135 | 81 | 82 | 71 | 50 | 40 | 1510 | 51 |
| 20 | 57 | 97 | 79 | 95 | 130 | 82 | 78 | 63 | 46 | 39 | 548 | 51 |
| 21 | 56 | 71 | 95 | 86 | 124 | 81 | 74 | 76 | 46 | 39 | 1050 | 49 |
| 22 | 55 | 65 | 124 | 84 | 123 | 96 | 70 | 75 | 46 | 37 | 414 | 50 |
| 23 | 75 | 63 | 103 | 79 | 121 | 146 | 68 | 307 | 53 | 36 | 230 | 55 |
| 24 | 224 | 63 | 91 | 78 | 120 | 126 | 66 | 910 | 77 | 34 | 168 | 54 |
| 25 | 111 | 62 | 87 | 78 | 117 | 109 | 69 | 553 | 49 | 43 | 200 | 50 |
| 26 | 76 | 61 | 81 | 79 | 190 | 97 | 66 | 186 | 44 | 74 | 628 | 47 |
| 27 | 68 | 61 | 80 | 79 | 166 | 93 | 62 | 118 | 42 | 94 | 842 | 46 |
| 28 | 64 | 103 | 80 | 80 | 135 | 91 | 66 | 91 | 41 | 123 | 263 | 44 |
| 29 | 69 | 259 | 80 | 83 | --- | 91 | 69 | 85 | 42 | 99 | 170 | 42 |
| 30 | 65 | 127 | 79 | 88 | --- | 90 | 62 | 74 | 43 | 82 | 418 | 42 |
| 31 | 64 | --- | 95 | 135 | --- | 86 | --- | 69 | --- | 62 | 253 | --- |
| TOTAL | 2167 | 2218 | 2882 | 4395 | 7339 | 3055 | 2336 | 4424 | 1737 | 1814 | 12388 | 1805 |
| MEAN | 69.9 | 73.9 | 93.0 | 142 | 262 | 98.5 | 77.9 | 143 | 57.9 | 58.5 | 400 | 60.2 |
| MAX | 224 | 259 | 193 | 630 | 1070 | 146 | 127 | 910 | 100 | 123 | 4640 | 127 |
| MIN | 52 | 57 | 79 | 78 | 117 | 81 | 62 | 56 | 41 | 34 | 40 | 42 |
| CFSM | .40 | .43 | .54 | .82 | 1.51 | .57 | .45 | .83 | .33 | .34 | 2.31 | .35 |
| IN. | .47 | .48 | .62 | .95 | 1.58 | .66 | .50 | .95 | .37 | .39 | 2.66 | .39 |

CAL YR 1984 TOTAL 71276 MEAN 195 MAX 4770 MIN 43 CFSM 1.13 IN. 15.33
WTR YR 1985 TOTAL 46560 MEAN 128 MAX 4640 MIN 34 CFSM .74 IN. 10.01

## 02065500 CUB CREEK AT PHENIX, VA

LOCATION.--Lat 37°04'45", long 78°45'50", Charlotte County, Hydrologic Unit 03010102, on right bank 10 ft upstream from bridge on State Highway 40, 0.9 mi west of Phenix, 1.9 mi downstream from Rough Creek, and 6.4 mi upstream from Louse Creek.

DRAINAGE AREA.--98.0 mi².

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1333: 1947(M), 1948, 1949(M). WSP 2104: Drainage area. WDR VA-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 370.19 ft above National Geodetic Vertical Datum of 1929. Prior to July 14, 1950, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 24-29 and Feb. 10. Records good except those for periods with ice effect, Jan. 24-29 and Feb. 10, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--39 years, 97.4 ft³/s, 13.50 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,380 ft³/s, June 22, 1972, gage height, 20.37 ft, from floodmark in gage house, from rating curve extended above 2,700 ft³/s; minimum, 2.6 ft³/s, Oct. 6, 1970, gage height, 0.74 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 17.5 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 19 | 0530 | *5,740 | *14.61 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 18 ft³/s, July 24-25, gage height, 1.18 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 113 | 51 | 86 | 70 | 288 | 79 | 59 | 40 | 42 | 28 | 34 | 70 |
| 2 | 91 | 50 | 72 | 63 | 575 | 77 | 57 | 40 | 38 | 31 | 49 | 59 |
| 3 | 52 | 48 | 76 | 185 | 589 | 73 | 56 | 93 | 36 | 29 | 32 | 53 |
| 4 | 44 | 47 | 70 | 439 | 254 | 69 | 57 | 81 | 35 | 27 | 26 | 47 |
| 5 | 41 | 56 | 67 | 506 | 141 | 70 | 57 | 49 | 38 | 25 | 25 | 44 |
| 6 | 40 | 57 | 162 | 298 | 128 | 66 | 57 | 43 | 70 | 25 | 24 | 42 |
| 7 | 39 | 50 | 145 | 157 | 113 | 62 | 55 | 41 | 46 | 27 | 27 | 39 |
| 8 | 39 | 47 | 94 | 122 | 96 | 63 | 57 | 37 | 41 | 24 | 38 | 37 |
| 9 | 39 | 46 | 81 | 102 | 84 | 65 | 56 | 36 | 38 | 23 | 42 | 36 |
| 10 | 39 | 46 | 74 | 90 | 82 | 63 | 56 | 35 | 35 | 23 | 31 | 36 |
| 11 | 39 | 48 | 73 | 87 | 87 | 61 | 57 | 36 | 59 | 52 | 26 | 34 |
| 12 | 39 | 51 | 68 | 82 | 202 | 64 | 57 | 36 | 57 | 34 | 24 | 33 |
| 13 | 39 | 47 | 64 | 76 | 408 | 60 | 56 | 248 | 59 | 27 | 23 | 32 |
| 14 | 39 | 44 | 62 | 75 | 198 | 59 | 57 | 126 | 39 | 28 | 23 | 30 |
| 15 | 39 | 45 | 60 | 73 | 126 | 58 | 60 | 56 | 34 | 28 | 21 | 30 |
| 16 | 40 | 45 | 59 | 63 | 108 | 57 | 63 | 59 | 36 | 25 | 21 | 31 |
| 17 | 42 | 45 | 59 | 73 | 97 | 57 | 80 | 71 | 41 | 23 | 33 | 30 |
| 18 | 45 | 45 | 59 | 80 | 91 | 56 | 60 | 73 | 36 | 22 | 665 | 30 |
| 19 | 46 | 89 | 59 | 80 | 86 | 54 | 56 | 50 | 32 | 21 | 3790 | 29 |
| 20 | 46 | 113 | 58 | 79 | 83 | 54 | 53 | 42 | 30 | 20 | 713 | 29 |
| 21 | 45 | 68 | 64 | 80 | 78 | 55 | 51 | 45 | 28 | 20 | 428 | 29 |
| 22 | 46 | 58 | 85 | 67 | 76 | 60 | 48 | 103 | 27 | 20 | 296 | 30 |
| 23 | 66 | 54 | 74 | 61 | 75 | 92 | 46 | 134 | 27 | 19 | 124 | 37 |
| 24 | 137 | 53 | 63 | 57 | 75 | 89 | 44 | 205 | 29 | 19 | 81 | 36 |
| 25 | 236 | 52 | 60 | 54 | 75 | 74 | 45 | 294 | 28 | 20 | 101 | 34 |
| 26 | 90 | 51 | 56 | 54 | 115 | 65 | 43 | 172 | 26 | 36 | 210 | 31 |
| 27 | 66 | 50 | 54 | 55 | 116 | 61 | 41 | 77 | 25 | 36 | 331 | 31 |
| 28 | 58 | 76 | 54 | 57 | 89 | 61 | 44 | 58 | 24 | 100 | 417 | 30 |
| 29 | 64 | 231 | 54 | 62 | --- | 61 | 49 | 51 | 25 | 43 | 116 | 28 |
| 30 | 61 | 133 | 53 | 66 | --- | 61 | 43 | 46 | 25 | 36 | 91 | 28 |
| 31 | 53 | --- | 64 | 103 | --- | 59 | --- | 44 | --- | 29 | 102 | --- |
| TOTAL | 1873 | 1896 | 2229 | 3516 | 4535 | 2005 | 1620 | 2521 | 1106 | 920 | 7964 | 1085 |
| MEAN | 60.4 | 63.2 | 71.9 | 113 | 162 | 64.7 | 54.0 | 81.3 | 36.9 | 29.7 | 257 | 36.2 |
| MAX | 236 | 231 | 162 | 506 | 589 | 92 | 80 | 294 | 70 | 100 | 3790 | 70 |
| MIN | 39 | 44 | 53 | 54 | 75 | 54 | 41 | 35 | 24 | 19 | 21 | 28 |
| CFSM | .62 | .64 | .73 | 1.15 | 1.65 | .66 | .55 | .83 | .38 | .30 | 2.62 | .37 |
| IN. | .71 | .72 | .85 | 1.33 | 1.72 | .76 | .61 | .96 | .42 | .35 | 3.02 | .41 |

CAL YR 1984 TOTAL 42567 MEAN 116 MAX 1500 MIN 28 CFSM 1.18 IN. 16.16
WTR YR 1985 TOTAL 31270 MEAN 85.7 MAX 3790 MIN 19 CFSM .87 IN. 11.87

## 02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA

LOCATION.--Lat 36°54'54", long 78°44'28", Halifax County, Hydrologic Unit 03010102, on right bank 14 ft downstream from bridge on State Highway 746, 2.8 mi northwest of Randolph, 3.6 mi upstream from Roanoke Creek, and at mile 227.3.

DRAINAGE AREA.--2,977 mi².

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1900 to September 1906, October 1927 to September 1930, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1902, published as Staunton River at Randolph. Gage heights collected since 1905 at this site or at former site are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1203: 1928-30. WSP 1303: 1901-6. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 307.59 ft above National Geodetic Vertical Datum of 1929. Aug. 27, 1900, to Oct. 13, 1902, nonrecording gage at site 3.2 mi downstream at datum about 5.9 ft lower. Oct. 14, 1902, to Aug. 11, 1906, and Oct. 1, 1927, to Mar. 31, 1930, nonrecording gage at site of original gage at datum 3.93 ft lower than present datum.

REMARKS.--Estimated daily discharges: Oct. 7-9, 14-16, 21-23, 28-30, Nov. 4-6, 11-13, 25, Dec. 16, 17, 25-27, Dec. 30 to Jan. 1, Jan. 21, Mar. 18, 19, June 17, 18, 24, 25, and July 1, 2, 5, 7-9, 15, 21, 22. Records good except those for periods of doubtful gage-height record, which are fair. Flow regulated since 1962 by Leesville Lake (station 02059400) 68.7 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 86.7 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

AVERAGE DISCHARGE.--44 years, 3,048 ft³/s, 13.90 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,000 ft³/s, Dec. 31, 1901, gage height, 35.0 ft, from graph based on gage readings, site and datum then in use; minimum daily, 179 ft³/s, Sept. 8, 1965, July 7, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 41.6 ft, present site and datum, discharge, 150,000 ft³/s, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37,000 ft³/s, Aug. 20, gage height, 27.28 ft; minimum daily, 534 ft³/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1240 | 1590 | 2380 | 1900 | 3770 | 3470 | 1050 | 1940 | 4060 | 640 | 1530 | 2670 |
| 2 | 2170 | 1570 | 1540 | 1400 | 8070 | 3970 | 2130 | 1910 | 1830 | 1010 | 1770 | 1380 |
| 3 | 2070 | 1690 | 1040 | 2900 | 8110 | 1890 | 2370 | 2050 | 1090 | 1510 | 1760 | 1180 |
| 4 | 1780 | 1040 | 1720 | 7700 | 6310 | 1190 | 2180 | 2200 | 1380 | 1630 | 1200 | 1770 |
| 5 | 1720 | 820 | 1860 | 12900 | 6800 | 3390 | 1780 | 1980 | 1600 | 1000 | 629 | 1970 |
| 6 | 1760 | 1400 | 2360 | 7740 | 5070 | 2670 | 1760 | 1920 | 2200 | 1590 | 871 | 1860 |
| 7 | 1240 | 1700 | 2590 | 3080 | 3990 | 2280 | 1220 | 1910 | 1660 | 1150 | 1380 | 1840 |
| 8 | 800 | 1510 | 2110 | 3780 | 3460 | 1930 | 949 | 1840 | 1250 | 700 | 1540 | 1300 |
| 9 | 1310 | 1540 | 1490 | 4240 | 3110 | 2200 | 1460 | 1800 | 1230 | 600 | 1820 | 796 |
| 10 | 1660 | 1550 | 1090 | 3080 | 1780 | 1620 | 1680 | 1840 | 949 | 1350 | 1660 | 1180 |
| 11 | 1600 | 1020 | 1730 | 2450 | 1290 | 1050 | 1720 | 1860 | 1730 | 1620 | 1320 | 1560 |
| 12 | 1620 | 850 | 1870 | 1890 | 3280 | 1710 | 1530 | 1880 | 1690 | 1650 | 670 | 1530 |
| 13 | 1550 | 1360 | 1850 | 1360 | 10400 | 2160 | 1550 | 3470 | 1890 | 1600 | 837 | 1500 |
| 14 | 950 | 1490 | 1850 | 1110 | 8630 | 2350 | 1430 | 3470 | 1890 | 1300 | 1360 | 1420 |
| 15 | 780 | 1400 | 1920 | 1730 | 4270 | 2210 | 1110 | 2080 | 1790 | 1060 | 1380 | 1160 |
| 16 | 1390 | 1460 | 1250 | 1800 | 3460 | 2140 | 1850 | 2040 | 1290 | 1380 | 1360 | 652 |
| 17 | 1570 | 1420 | 914 | 1760 | 2060 | 1220 | 1820 | 2290 | 730 | 1480 | 1470 | 882 |
| 18 | 1620 | 1010 | 1590 | 2060 | 1530 | 1000 | 1800 | 2270 | 980 | 1480 | 7490 | 1390 |
| 19 | 1590 | 706 | 1840 | 2070 | 2190 | 1880 | 1870 | 2110 | 1500 | 1420 | 27900 | 1380 |
| 20 | 1580 | 1710 | 1790 | 1360 | 3030 | 1860 | 1860 | 2010 | 1430 | 1230 | 35100 | 1390 |
| 21 | 1000 | 1970 | 1870 | 900 | 2790 | 1750 | 1440 | 1980 | 1410 | 980 | 28100 | 1360 |
| 22 | 800 | 2170 | 2190 | 3460 | 2380 | 1720 | 1300 | 2240 | 1390 | 570 | 15300 | 1080 |
| 23 | 1350 | 1450 | 1530 | 4070 | 2370 | 1870 | 1690 | 2680 | 1180 | 833 | 7670 | 615 |
| 24 | 1990 | 952 | 1140 | 1900 | 1790 | 1620 | 2010 | 4530 | 660 | 1400 | 3120 | 1030 |
| 25 | 2670 | 1150 | 1640 | 1330 | 1220 | 1490 | 1970 | 5830 | 1100 | 1410 | 1840 | 1400 |
| 26 | 2010 | 837 | 1000 | 1250 | 3900 | 2000 | 2050 | 4230 | 1420 | 1680 | 3010 | 1330 |
| 27 | 2040 | 1330 | 1590 | 1120 | 3720 | 2210 | 2020 | 2770 | 1390 | 1620 | 11300 | 1310 |
| 28 | 1200 | 1640 | 2090 | 1000 | 3190 | 2620 | 1920 | 2480 | 1310 | 1480 | 7600 | 1330 |
| 29 | 890 | 2450 | 2470 | 1680 | --- | 2610 | 1940 | 3640 | 1390 | 995 | 4850 | 1020 |
| 30 | 1460 | 3220 | 1200 | 1800 | --- | 3780 | 1980 | 3370 | 1230 | 1740 | 4230 | 534 |
| 31 | 1640 | --- | 920 | 1890 | --- | 1710 | --- | 2370 | --- | 1650 | 5550 | --- |
| TOTAL | 47050 | 44005 | 52424 | 86710 | 111970 | 65570 | 51439 | 78990 | 44649 | 39758 | 185617 | 39819 |
| MEAN | 1518 | 1467 | 1691 | 2797 | 3999 | 2115 | 1715 | 2548 | 1488 | 1283 | 5988 | 1327 |
| MAX | 2670 | 3220 | 2590 | 12900 | 10400 | 3970 | 2370 | 5830 | 4060 | 1740 | 35100 | 2670 |
| MIN | 780 | 706 | 914 | 900 | 1220 | 1000 | 949 | 1800 | 660 | 570 | 629 | 534 |
| (*) | -71 | -87 | +91 | -62 | +316 | +43 | -84 | -16 | -190 | +182 | +5 | -205 |
| MEAN† | 1447 | 1380 | 1782 | 2735 | 4315 | 2158 | 1631 | 2532 | 1298 | 1465 | 5993 | 1122 |
| CFSM† | .49 | .46 | .60 | .92 | 1.45 | .72 | .55 | .85 | .44 | .49 | 2.01 | .38 |
| IN.† | .56 | .52 | .69 | 1.06 | 1.51 | .84 | .61 | .98 | .49 | .57 | 2.32 | .42 |

CAL YR 1984 TOTAL 1222625 MEAN 3341 MAX 29600 MIN 610 MEAN† 3318 CFSM† 1.11 IN.† 15.17
WTR YR 1985 TOTAL 848001 MEAN 2323 MAX 35100 MIN 534 MEAN† 2316 CFSM† .78 IN.† 10.56

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; provided by Appalachian Power Company.

† Adjusted for change in contents.

## 02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to September 1956, April 1968 to September 1982.
WATER TEMPERATURE: October 1950 to September 1956, April 1968 to September 1982.
SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 09... | 15:15 | 1690 | 109 | 114 | 7.4 | 7.4 | 19.5 | 757 | <1 | 8.7 |
| NOV | | | | | | | | | | |
| 13... | 16:00 | 2040 | 113 | 111 | 7.3 | 7.5 | 9.5 | 753 | 5 | 10.5 |
| DEC | | | | | | | | | | |
| 17... | 15:15 | 903 | 118 | 120 | 7.5 | 7.5 | 11.0 | 755 | 5 | 10.2 |
| FEB | | | | | | | | | | |
| 04... | 15:45 | 7330 | 68 | 69 | 7.0 | 6.9 | 3.5 | 761 | 150 | 12.8 |
| MAR | | | | | | | | | | |
| 19... | 07:15 | 874 | 97 | 108 | 7.3 | 7.4 | 7.0 | 760 | 15 | 10.5 |
| MAY | | | | | | | | | | |
| 06... | 14:00 | 1900 | 137 | 133 | -- | 7.4 | 20.0 | 750 | 10 | 8.6 |
| JUN | | | | | | | | | | |
| 17... | 15:15 | 612 | 139 | 136 | 7.4 | 7.4 | 25.5 | 750 | 5 | 7.1 |
| AUG | | | | | | | | | | |
| 05... | 15:15 | 588 | 145 | 144 | 7.4 | 7.6 | 25.0 | 755 | 10 | 7.2 |
| SEP | | | | | | | | | | |
| 16... | 15:00 | 619 | 134 | 136 | 7.4 | 7.6 | 19.5 | 757 | 15 | 8.1 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 09... | 95 | 45 | 45 | 11 | 4.2 | 5.5 | 1.9 | 44 | 7.2 |
| NOV | | | | | | | | | |
| 13... | 93 | 41 | 41 | 9.9 | 4.0 | 5.6 | 1.7 | 41 | 6.7 |
| DEC | | | | | | | | | |
| 17... | 93 | 46 | 46 | 11 | 4.4 | 5.6 | 1.5 | 44 | 7.5 |
| FEB | | | | | | | | | |
| 04... | 96 | 27 | 27 | 6.7 | 2.5 | 2.9 | 2.0 | 19 | 9.6 |
| MAR | | | | | | | | | |
| 19... | 87 | 38 | 38 | 9.3 | 3.7 | 5.2 | 1.5 | 38 | 7.0 |
| MAY | | | | | | | | | |
| 06... | 96 | 49 | 49 | 12 | 4.7 | 5.6 | 1.7 | 46 | 9.0 |
| JUN | | | | | | | | | |
| 17... | 88 | 53 | 53 | 13 | 5.1 | 6.0 | 1.8 | 50 | 8.9 |
| AUG | | | | | | | | | |
| 05... | 88 | 54 | 54 | 13 | 5.3 | 6.3 | 2.3 | 50 | 9.8 |
| SEP | | | | | | | | | |
| 16... | 89 | 50 | 50 | 12 | 4.9 | 6.1 | 2.5 | 49 | 8.9 |

## 02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT<br>09... | 6.2 | 0.1 | 11 | 76 | 74 | <0.01 | 0.11 | <0.01 | 91 |
| NOV<br>13... | 5.4 | <0.1 | 11 | 71 | 69 | <0.01 | 0.13 | 0.02 | 180 |
| DEC<br>17... | 5.8 | <0.1 | 10 | 64 | 72 | <0.01 | 0.17 | 0.01 | 120 |
| FEB<br>04... | 4.4 | <0.1 | 9.7 | 62 | 50 | 0.11 | 0.46 | 0.02 | 180 |
| MAR<br>19... | 4.8 | 0.1 | 11 | 74 | 66 | <0.01 | <0.10 | <0.01 | 150 |
| MAY<br>06... | 6.1 | 0.1 | 8.8 | 81 | 76 | <0.01 | 0.14 | <0.01 | 78 |
| JUN<br>17... | 6.2 | <0.1 | 10 | 84 | 81 | <0.01 | 0.21 | <0.01 | 110 |
| AUG<br>05... | 6.2 | 0.2 | 9.8 | 95 | 83 | <0.01 | 0.22 | 0.02 | 96 |
| SEP<br>16... | 6.2 | <0.1 | 10 | 93 | 80 | <0.01 | 0.16 | 0.02 | 190 |

## 02067800; 02067820 TALBOTT AND TOWNES RESERVOIRS NEAR KIBLER, VA

**LOCATION.**--Talbott Dam: Lat 36°40'39", long 80°23'52", Patrick County, Hydrologic Unit 03010103, on Dan River 4.5 mi northeast of Kibler. Townes Dam: Lat 36°41'10", long 80°25'50", Patrick County, Hydrologic Unit 03010103, on Dan River about 4 mi north of Kibler.

**DRAINAGE AREA.**--Talbott Dam, 20.2 $mi^2$; Townes Dam, 32.9 $mi^2$.

**PERIOD OF RECORD.**--February 1939 to December 1945, January 1948 to September 1960 (published in WSP 1723), and October 1960 to current year.

**REMARKS.**--The two reservoirs are operated as a unit for storage of water for Pinnacles hydroelectric plant. Total capacity of Talbott Reservoir, 8,035 acre-ft, and Townes Reservoir, 1,377 acre-ft. Storage began in Talbott Reservoir on Feb. 13, 1939, and in Townes Reservoir several months earlier.

**COOPERATION.**--Records were provided by the city of Danville.

COMBINED MONTHEND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|
| Sept. 30 | 6,820 | - |
| Oct. 31 | 6,170 | -650 |
| Nov. 30 | 6,160 | -10 |
| Dec. 31 | 6,090 | -70 |
| CAL YR 1984 | - | -1,630 |
| Jan. 31 | 6,020 | -70 |
| Feb. 28 | 7,420 | +1,400 |
| Mar. 31 | 7,340 | -80 |
| Apr. 30 | 7,580 | +240 |
| May 31 | 7,580 | 0 |
| June 30 | 7,280 | -300 |
| July 31 | 7,050 | -230 |
| Aug. 31 | 8,150 | +1,100 |
| Sept. 30 | 6,990 | -1,160 |
| WTR YR 1985 | - | +170 |

## 02068500 DAN RIVER NEAR FRANCISCO, NC

**LOCATION.**--Lat 36°30'53", long 80°18'11", Stokes County, Hydrologic Unit 03010103, on left bank 200 ft upstream from bridge on State Highway 704, 700 ft downstream from remains of Georges Mill, 0.2 mi downstream from Elk Creek, 3 mi east of Francisco, and 7.9 mi downstream from Little Dan River.

**DRAINAGE AREA.**--129 mi$^2$.

**PERIOD OF RECORD.**--August 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 1303: 1938-50 (monthly runoff). WSP 1433: 1925-26, 1928-29, 1931, 1942, 1948. WDR NC-80-1: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 831.99 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1929, nonrecording gage at same site and datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Since 1938, considerable diurnal fluctuation and regulation by Talbott Reservoir (station 02067800) and Townes Reservoir (station 02067820) and Pinnacles hydroelectric plant in Virginia, 28 mi upstream from station. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--61 years, 191 ft$^3$/s, 20.11 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 21,200 ft$^3$/s, Aug. 17, 1985, gage height, 19.50 ft, from rating curve extended above 8,400 ft$^3$/s on basis of slope-area measurement at gage height 18.11 ft; minimum, 7.1 ft$^3$/s, Sept. 8, 1932, gage height, 0.43 ft; minimum daily, 27 ft$^3$/s, Aug. 24, 1981.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in 1916 reached a stage of about 15 ft, from information by local residents, discharge, 16,000 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| May 23 | 0300 | 2,080 | 4.65 | Aug. 17 | 2330 | *21,200 | *19.50 |

Minimum discharge, 58 ft$^3$/s, Nov. 1, 3, 16; minimum daily, 62 ft$^3$/s, Nov. 2; minimum gage height, 1.22 ft, Apr. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 151 | 70 | 96 | 83 | 320 | 124 | 127 | 122 | 126 | 127 | 107 | 233 |
| 2 | 134 | 62 | 93 | 94 | 428 | 122 | 110 | 130 | 126 | 106 | 127 | 231 |
| 3 | 116 | 63 | 97 | 176 | 227 | 106 | 136 | 146 | 102 | 111 | 116 | 229 |
| 4 | 112 | 86 | 112 | 244 | 165 | 104 | 111 | 127 | 128 | 122 | 111 | 211 |
| 5 | 101 | 147 | 119 | 174 | 181 | 105 | 98 | 122 | 189 | 125 | 107 | 212 |
| 6 | 97 | 114 | 149 | 128 | 167 | 101 | 126 | 120 | 199 | 126 | 108 | 206 |
| 7 | 92 | 109 | 140 | 121 | 133 | 112 | 133 | 133 | 111 | 127 | 105 | 173 |
| 8 | 94 | 115 | 101 | 118 | 133 | 102 | 129 | 95 | 113 | 119 | 171 | 179 |
| 9 | 101 | 105 | 94 | 123 | 142 | 105 | 130 | 89 | 99 | 107 | 175 | 168 |
| 10 | 108 | 91 | 93 | 125 | 128 | 102 | 77 | 94 | 93 | 101 | 124 | 152 |
| 11 | 99 | 96 | 92 | 128 | 113 | 102 | 103 | 107 | 118 | 144 | 117 | 143 |
| 12 | 101 | 90 | 90 | 97 | 292 | 103 | 116 | 110 | 92 | 108 | 89 | 103 |
| 13 | 108 | 105 | 89 | e95 | 192 | 101 | 112 | 98 | 86 | 108 | 120 | 98 |
| 14 | 117 | 101 | 88 | e105 | 158 | 100 | 98 | 143 | 105 | 109 | 108 | 93 |
| 15 | 88 | 84 | 88 | e95 | 132 | 99 | 103 | 137 | 107 | 102 | 98 | 93 |
| 16 | 100 | 64 | 87 | e85 | 123 | 106 | 216 | 279 | 118 | 106 | 95 | 95 |
| 17 | 119 | 85 | 88 | e100 | 121 | 110 | 190 | 207 | 106 | 81 | 1500 | 94 |
| 18 | 95 | 84 | 86 | 97 | 115 | 110 | 137 | 158 | 91 | 78 | 6430 | 93 |
| 19 | 118 | 93 | 87 | 95 | 113 | 123 | 125 | 137 | 85 | 75 | 1090 | 91 |
| 20 | 122 | 103 | 88 | e90 | 112 | 97 | 132 | 129 | 82 | 73 | 550 | 89 |
| 21 | 128 | 112 | 90 | e80 | 94 | 93 | 135 | 126 | 81 | 89 | 533 | 89 |
| 22 | 96 | 110 | 94 | e90 | 99 | 116 | 107 | 136 | 80 | 75 | 361 | 89 |
| 23 | 120 | 94 | 89 | e100 | 108 | 220 | 137 | 574 | 80 | 98 | 327 | 89 |
| 24 | 160 | 91 | 86 | e110 | 108 | 161 | 111 | 394 | 85 | 76 | 333 | 108 |
| 25 | 98 | 85 | 87 | e110 | 111 | 119 | 168 | 263 | 102 | 151 | 384 | 108 |
| 26 | 92 | 86 | 83 | e110 | 133 | 121 | 137 | 194 | 106 | 139 | 367 | 133 |
| 27 | 88 | 85 | 84 | e110 | 119 | 120 | 131 | 156 | 82 | 349 | 345 | 140 |
| 28 | 95 | 146 | 84 | e110 | 113 | 120 | 131 | 171 | 80 | 210 | 278 | 95 |
| 29 | 119 | 171 | 84 | e110 | --- | 120 | 127 | 167 | 83 | 157 | 261 | 81 |
| 30 | 124 | 105 | 83 | e120 | --- | 122 | 123 | 155 | 122 | 122 | 249 | 81 |
| 31 | 91 | --- | 83 | 118 | --- | 121 | --- | 131 | --- | 107 | 235 | --- |
| TOTAL | 3384 | 2952 | 2924 | 3541 | 4380 | 3567 | 3816 | 5150 | 3177 | 3728 | 15121 | 3999 |
| MEAN | 109 | 98.4 | 94.3 | 114 | 156 | 115 | 127 | 166 | 106 | 120 | 488 | 133 |
| MAX | 160 | 171 | 149 | 244 | 428 | 220 | 216 | 574 | 199 | 349 | 6430 | 233 |
| MIN | 88 | 62 | 83 | 80 | 94 | 93 | 77 | 89 | 80 | 73 | 89 | 81 |
| (†) | -11 | 0 | -1 | -1 | +25 | -1 | +4 | 0 | -5 | -4 | +18 | -19 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 70747 | MEAN | 193 | MAX | 1240 | MIN | 62 | MEAN‡ | 191 | CFSM‡ | 1.48 | IN.† | 20.19 |
| WTR YR 1985 | TOTAL | 55739 | MEAN | 153 | MAX | 6430 | MIN | 62 | MEAN‡ | 153 | CFSM‡ | 1.19 | IN.‡ | 16.07 |

† Change in contents, equivalent in cubic feet per second, in Talbott and Townes Reservoirs; provided by city of Danville, Va.
‡ Adjusted for change in contents.
e Estimated.

## 02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA

LOCATION.--Lat 36°34'15", long 80°07'47", Patrick County, Hydrologic Unit 03010103, on right bank 60 ft downstream from bridge on State Highway 700, 1.2 mi southeast of Nettleridge, 1.4 mi downstream from Russell Creek, and 3.6 mi upstream from Spoon Creek.

DRAINAGE AREA.--84.6 mi$^2$.

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-74-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 871.60 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 22-30, Feb. 6, 7, and Aug. 25. Records good except those for period of doubtful gage-height record, Aug. 25, and periods with ice effect, Jan. 22-30 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--23 years, 125 ft$^3$/s, 20.07 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft$^3$/s, Sept. 22, 1979, gage height, 22.00 ft, from rating curve extended above 2,900 ft$^3$/s on basis of contracted-opening measurements at gage heights 18.32 ft and 22.00 ft; minimum, 20 ft$^3$/s, Aug. 29, 30, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,300 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| July 27 | 0100 | 1,480 | 7.51 | Aug. 21 | 0030 | 1,390 | 7.30 |
| Aug. 18 | 0500 | *18,100 | *20.89 | Aug. 21 | 1500 | 1,690 | 7.96 |

Minimum discharge, 35 ft$^3$/s, Jan. 21, result of freezeup; minimum daily, 39 ft$^3$/s, July 21.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 152 | 63 | 83 | 68 | 282 | 86 | 72 | 60 | 67 | 61 | 133 | 115 |
| 2 | 71 | 62 | 78 | 75 | 389 | 84 | 65 | 63 | 62 | 59 | 121 | 111 |
| 3 | 64 | 58 | 80 | 179 | 203 | 80 | 64 | 80 | 62 | 51 | 84 | 104 |
| 4 | 61 | 70 | 74 | 242 | 140 | 79 | 64 | 63 | 69 | 47 | 71 | 98 |
| 5 | 60 | 127 | 81 | 152 | 120 | 78 | 63 | 59 | 75 | 45 | 64 | 95 |
| 6 | 59 | 79 | 123 | 111 | 110 | 74 | 74 | 57 | 97 | 45 | 62 | 91 |
| 7 | 58 | 68 | 91 | 96 | 100 | 72 | 65 | 56 | 70 | 45 | 67 | 86 |
| 8 | 59 | 64 | 84 | 87 | 94 | 73 | 64 | 56 | 73 | 42 | 94 | 83 |
| 9 | 61 | 64 | 81 | 80 | 90 | 75 | 62 | 54 | 62 | 40 | 78 | 101 |
| 10 | 59 | 63 | 79 | 76 | 89 | 72 | 61 | 55 | 57 | 43 | 64 | 96 |
| 11 | 59 | 67 | 77 | 74 | 84 | 71 | 61 | 59 | 55 | 61 | 58 | 84 |
| 12 | 57 | 63 | 75 | 70 | 349 | 71 | 61 | 61 | 56 | 98 | 55 | 80 |
| 13 | 57 | 61 | 74 | 69 | 183 | 68 | 60 | 55 | 52 | 76 | 60 | 77 |
| 14 | 57 | 60 | 74 | 68 | 135 | 68 | 61 | 52 | 50 | 50 | 53 | 73 |
| 15 | 56 | 60 | 74 | 66 | 116 | 67 | 65 | 59 | 50 | 68 | 50 | 71 |
| 16 | 56 | 60 | 74 | 68 | 103 | 66 | 147 | 164 | 51 | 66 | 74 | 70 |
| 17 | 57 | 58 | 71 | 73 | 98 | 66 | 117 | 136 | 52 | 48 | 566 | 69 |
| 18 | 57 | 59 | 70 | 69 | 92 | 65 | 88 | 87 | 49 | 43 | 6580 | 67 |
| 19 | 57 | 67 | 72 | 68 | 89 | 64 | 79 | 69 | 48 | 41 | 830 | 66 |
| 20 | 57 | 64 | 72 | 63 | 87 | 64 | 73 | 63 | 46 | 40 | 555 | 64 |
| 21 | 56 | 60 | 75 | 44 | 83 | 64 | 68 | 72 | 45 | 39 | 924 | 63 |
| 22 | 67 | 59 | 78 | 54 | 81 | 72 | 66 | 72 | 44 | 42 | 300 | 63 |
| 23 | 63 | 59 | 73 | 52 | 80 | 109 | 63 | 343 | 44 | 44 | 206 | 63 |
| 24 | 112 | 59 | 69 | 50 | 80 | 83 | 64 | 253 | 45 | 41 | 227 | 62 |
| 25 | 73 | 58 | 70 | 50 | 80 | 74 | 125 | 148 | 43 | 129 | 260 | 59 |
| 26 | 65 | 58 | 67 | 52 | 114 | 70 | 82 | 110 | 46 | 145 | 198 | 57 |
| 27 | 62 | 58 | 68 | 53 | 97 | 68 | 74 | 91 | 42 | 416 | 219 | 57 |
| 28 | 65 | 169 | 68 | 54 | 89 | 68 | 73 | 81 | 41 | 197 | 172 | 54 |
| 29 | 98 | 130 | 67 | 57 | --- | 68 | 67 | 75 | 48 | 138 | 147 | 54 |
| 30 | 67 | 92 | 67 | 62 | --- | 68 | 63 | 71 | 53 | 99 | 134 | 54 |
| 31 | 64 | --- | 68 | 76 | --- | 66 | --- | 70 | --- | 85 | 125 | --- |
| TOTAL | 2066 | 2139 | 2357 | 2458 | 3657 | 2253 | 2211 | 2794 | 1654 | 2444 | 12631 | 2287 |
| MEAN | 66.6 | 71.3 | 76.0 | 79.3 | 131 | 72.7 | 73.7 | 90.1 | 55.1 | 78.8 | 407 | 76.2 |
| MAX | 152 | 169 | 123 | 242 | 389 | 109 | 147 | 343 | 97 | 416 | 6580 | 115 |
| MIN | 56 | 58 | 67 | 44 | 80 | 64 | 60 | 52 | 41 | 39 | 50 | 54 |
| CFSM | .79 | .84 | .90 | .94 | 1.55 | .86 | .87 | 1.07 | .65 | .93 | 4.81 | .90 |
| IN. | .91 | .94 | 1.04 | 1.08 | 1.61 | .99 | .97 | 1.23 | .73 | 1.07 | 5.55 | 1.01 |

CAL YR 1984 TOTAL 46789 MEAN 128 MAX 1020 MIN 51 CFSM 1.51 IN. 20.57

WTR YR 1985 TOTAL 38951 MEAN 107 MAX 6580 MIN 39 CFSM 1.26 IN. 17.13

## 02070000 NORTH MAYO RIVER NEAR SPENCER, VA

**LOCATION.**--Lat 36°34'05", long 79°59'15", Henry County, Hydrologic Unit 03010103, on left bank 800 ft downstream from bridge on State Highway 629 at Moores Mill, 2.1 mi downstream from Horse Pasture Creek, and 3.8 mi southeast of Spencer.

**DRAINAGE AREA.**--108 $mi^2$.

**PERIOD OF RECORD.**--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 1303: 1929-32(M), 1934(M).

**GAGE.**--Water-stage recorder. Datum of gage is 730.94 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Jan. 23, 1936, nonrecording gage at site 800 ft upstream at datum 1.50 ft higher. July 25 to Sept. 27, 1936, nonrecording gage at present site and datum.

**REMARKS.**--Estimated daily discharges: Jan. 21 to Feb. 23. Records good except those for period of no gage-height record, Jan. 21 to Feb. 23, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--57 years, 126 $ft^3/s$, 15.84 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 17,200 $ft^3/s$, Oct. 9, 1947, gage height, 15.80 ft, from rating curve extended above 7,200 $ft^3/s$ on basis of slope-area measurement at gage height 13.41 ft and velocity-area study; minimum, 14 $ft^3/s$, Aug. 11, 1956; minimum gage height, 1.08 ft, Oct. 8, 1954.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,400 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1330 | *14,100 | *14.22 | Aug. 21 | 0300 | 1,570 | 4.94 |

Minimum discharge, 28 $ft^3/s$, July 21, gage height, 1.23 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 174 | 78 | 94 | 76 | 350 | 100 | 85 | 64 | 69 | 64 | 716 | 97 |
| 2 | 92 | 76 | 87 | 78 | 460 | 98 | 79 | 64 | 61 | 69 | 343 | 95 |
| 3 | 79 | 71 | 87 | 249 | 260 | 96 | 78 | 74 | 63 | 53 | 124 | 91 |
| 4 | 74 | 78 | 81 | 524 | 180 | 92 | 78 | 66 | 61 | 48 | 92 | 86 |
| 5 | 74 | 126 | 85 | 250 | 145 | 92 | 78 | 63 | 71 | 44 | 79 | 83 |
| 6 | 71 | 94 | 148 | 145 | 130 | 88 | 79 | 61 | 92 | 44 | 71 | 80 |
| 7 | 71 | 83 | 109 | 121 | 120 | 87 | 78 | 60 | 72 | 43 | 100 | 78 |
| 8 | 71 | 78 | 98 | 107 | 115 | 87 | 74 | 60 | 74 | 40 | 184 | 76 |
| 9 | 72 | 78 | 90 | 96 | 110 | 90 | 71 | 58 | 66 | 37 | 110 | 75 |
| 10 | 71 | 78 | 88 | 90 | 105 | 85 | 71 | 58 | 60 | 40 | 80 | 75 |
| 11 | 71 | 79 | 87 | 87 | 100 | 83 | 72 | 60 | 58 | 54 | 69 | 72 |
| 12 | 71 | 78 | 83 | 81 | 400 | 83 | 74 | 64 | 58 | 42 | 63 | 71 |
| 13 | 69 | 72 | 81 | 81 | 250 | 81 | 72 | 61 | 53 | 48 | 60 | 70 |
| 14 | 69 | 71 | 79 | 79 | 170 | 83 | 72 | 55 | 50 | 45 | 56 | 67 |
| 15 | 69 | 72 | 78 | 78 | 140 | 81 | 78 | 61 | 50 | 40 | 54 | 66 |
| 16 | 69 | 72 | 78 | 79 | 130 | 79 | 134 | 194 | 50 | 40 | 60 | 66 |
| 17 | 69 | 71 | 78 | 85 | 120 | 81 | 117 | 126 | 53 | 37 | 271 | 65 |
| 18 | 69 | 71 | 78 | 81 | 115 | 78 | 92 | 90 | 49 | 33 | 7460 | 64 |
| 19 | 69 | 81 | 78 | 79 | 110 | 78 | 85 | 74 | 45 | 32 | 1020 | 63 |
| 20 | 69 | 83 | 78 | 76 | 105 | 78 | 81 | 66 | 43 | 31 | 419 | 62 |
| 21 | 69 | 74 | 79 | 59 | 100 | 78 | 78 | 69 | 43 | 30 | 704 | 62 |
| 22 | 76 | 74 | 83 | 68 | 98 | 85 | 74 | 88 | 42 | 31 | 224 | 62 |
| 23 | 79 | 72 | 78 | 68 | 97 | 137 | 71 | 376 | 42 | 71 | 166 | 62 |
| 24 | 122 | 74 | 74 | 64 | 98 | 109 | 71 | 306 | 42 | 42 | 193 | 60 |
| 25 | 100 | 74 | 76 | 66 | 98 | 96 | 90 | 177 | 41 | 149 | 266 | 58 |
| 26 | 83 | 72 | 72 | 68 | 132 | 87 | 78 | 119 | 40 | 242 | 167 | 56 |
| 27 | 78 | 72 | 72 | 70 | 117 | 85 | 72 | 96 | 37 | 201 | 180 | 56 |
| 28 | 79 | 123 | 74 | 72 | 102 | 83 | 74 | 83 | 38 | 214 | 145 | 54 |
| 29 | 107 | 197 | 74 | 75 | --- | 83 | 69 | 78 | 40 | 140 | 123 | 54 |
| 30 | 83 | 109 | 72 | 80 | --- | 83 | 66 | 72 | 58 | 96 | 114 | 54 |
| 31 | 78 | --- | 76 | 150 | --- | 81 | --- | 71 | --- | 83 | 105 | --- |
| TOTAL | 2497 | 2531 | 2595 | 3382 | 4457 | 2727 | 2391 | 3014 | 1621 | 2183 | 13818 | 2080 |
| MEAN | 80.5 | 84.4 | 83.7 | 109 | 159 | 88.0 | 79.7 | 97.2 | 54.0 | 70.4 | 446 | 69.3 |
| MAX | 174 | 197 | 148 | 524 | 460 | 137 | 134 | 376 | 92 | 242 | 7460 | 97 |
| MIN | 69 | 71 | 72 | 59 | 97 | 78 | 66 | 55 | 37 | 30 | 54 | 54 |
| CFSM | .75 | .78 | .77 | 1.01 | 1.47 | .81 | .74 | .90 | .50 | .65 | 4.13 | .64 |
| IN. | .86 | .87 | .89 | 1.16 | 1.54 | .94 | .82 | 1.04 | .56 | .75 | 4.76 | .72 |

|  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 50848 | MEAN | 139 | MAX | 1270 | MIN | 58 | CFSM 1.29 | IN. | 17.51 |
| WTR YR 1985 | TOTAL | 43296 | MEAN | 119 | MAX | 7460 | MIN | 30 | CFSM 1.10 | IN. | 14.91 |

## 02071900 PHILPOTT LAKE NEAR PHILPOTT, VA

**LOCATION.**--Lat 36°46'52", long 80°01'40", Henry County, Hydrologic Unit 03010103, at Philpott Dam on Smith River, 1.5 mi west of Philpott, 12.0 mi upstream from Reed Creek, and at mile 44.3.

**DRAINAGE AREA.**--216 mi².

**PERIOD OF RECORD.**--August 1950 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

**REMARKS.**--Reservoir is formed by concrete dam. Spillway, with crest at elevation 985 ft, is ungated and 120 ft long. Storage began August 1950 during construction; initial filling started in December 1951; water in reservoir first reached rule-curve elevation in July 1953. Total capacity at maximum flood-control pool elevation, 998 ft, is 247,400 acre-ft of which 47,000 acre-ft is upstream from the spillway crest; 34,200 acre-ft is controlled flood storage between elevations 974 ft, maximum power pool, and 985 ft; 57,800 acre-ft is available for power between elevations 951 ft, minimum power pool, and 974 ft; and 108,400 acre-ft is inactive and dead storage below elevation 951 ft. Usable capacity is 92,000 acre-ft between elevations 951 ft and 985 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for pollution abatement and industrial water supply, and recreation.

**COOPERATION.**--Records were provided by the U.S. Army Corps of Engineers.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum contents, 191,700 acre-ft, June 22, 1972, elevation, 983.06 ft; minimum (after first filling to rule curve), 64,540 acre-ft, Sept. 26, 1956, elevation, 927.59 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum contents, 177,370 acre-ft, Aug. 19, elevation, 977.76 ft; minimum, 152,010 acre-ft, Aug. 16, elevation, 968.97 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 971.50 | 159,040 | - |
| Oct. 31 | 971.10 | 157,910 | -1,130 |
| Nov. 30 | 970.99 | 157,600 | -310 |
| Dec. 31 | 970.90 | 157,350 | -250 |
| CAL YR 1984 | - | - | -5,720 |
| Jan. 31 | 971.30 | 158,470 | +1,120 |
| Feb. 28 | 972.93 | 163,100 | +4,630 |
| Mar. 31 | 973.28 | 164,110 | +1,010 |
| Apr. 30 | 973.30 | 164,170 | +60 |
| May 31 | 973.80 | 165,610 | +1,440 |
| June 30 | 972.54 | 161,980 | -3,630 |
| July 31 | 970.35 | 155,820 | -6,160 |
| Aug. 31 | 974.89 | 168,790 | +12,970 |
| Sept. 30 | 971.22 | 158,250 | -10,540 |
| WTR YR 1985 | - | - | -790 |

## 02072000 SMITH RIVER NEAR PHILPOTT, VA

**LOCATION.**--Lat 36°46'50", long 80°01'30", Franklin County, Hydrologic Unit 03010103, on left bank 900 ft downstream from Philpott Dam, 3.1 mi west of Philpott, 11.6 mi upstream from Reed Creek, and at mile 44.1.

**DRAINAGE AREA.**--216 mi².

**PERIOD OF RECORD.**--August 1946 to current year.

**REVISED RECORDS.**--WSP 1553: 1953(M), 1955-56(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 804.27 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi downstream at different datum.

**REMARKS.**--Estimated daily discharges: Aug. 22 to Sept. 17. Records good except those for period of no gage-height record, Aug. 22 to Sept. 17, which are fair. Since August 1950, flow regulated by Philpott Lake (station 02071900) 0.2 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--39 years, 276 ft³/s, 17.35 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 17,000 ft³/s, June 29, 1949, gage height, 20.3 ft, site and datum then in use, from rating curve extended above 9,700 ft³/s on basis of slope-area measurements at gage heights 18.2 ft and 20.3 ft; minimum, 4.0 ft³/s, Aug. 12, 1953, gage height, 1.50 ft; minimum daily, 20 ft³/s, Mar. 24, 1984, caused by turbines being shut down for repair at Philpott Dam.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 1,480 ft³/s, May 23, gage height, 5.18 ft; minimum, 9.8 ft³/s, Oct. 25, 26, Nov. 1, gage height, 1.86 ft; minimum daily, 39 ft³/s, Oct. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 195 | 174 | 44 | 192 | 194 | 186 | 187 | 189 | 43 | 302 | 298 | 60 |
| 2 | 195 | 181 | 44 | 192 | 44 | 44 | 189 | 189 | 43 | 287 | 299 | 780 |
| 3 | 193 | 45 | 193 | 196 | 44 | 44 | 192 | 189 | 228 | 286 | 46 | 820 |
| 4 | 193 | 45 | 197 | 197 | 190 | 189 | 193 | 44 | 232 | 287 | 46 | 910 |
| 5 | 190 | 186 | 187 | 44 | 375 | 194 | 190 | 45 | 239 | 284 | 311 | 950 |
| 6 | 45 | 191 | 191 | 44 | 383 | 193 | 44 | 193 | 237 | 44 | 301 | 850 |
| 7 | 45 | 198 | 192 | 195 | 397 | 188 | 45 | 194 | 234 | 44 | 288 | 58 |
| 8 | 195 | 195 | 45 | 481 | 389 | 191 | 188 | 188 | 44 | 313 | 309 | 58 |
| 9 | 195 | 193 | 44 | 486 | 43 | 45 | 189 | 182 | 44 | 307 | 307 | 231 |
| 10 | 189 | 44 | 190 | 492 | 43 | 45 | 190 | 186 | 236 | 301 | 46 | 233 |
| 11 | 190 | 44 | 191 | 491 | 186 | 192 | 193 | 44 | 232 | 300 | 46 | 235 |
| 12 | 185 | 191 | 190 | 44 | 192 | 186 | 189 | 44 | 232 | 301 | 284 | 240 |
| 13 | 44 | 193 | 191 | 44 | 190 | 190 | 45 | 190 | 240 | 44 | 297 | 240 |
| 14 | 44 | 195 | 191 | 191 | 191 | 190 | 45 | 190 | 242 | 44 | 306 | 50 |
| 15 | 185 | 192 | 44 | 191 | 189 | 194 | 188 | 194 | 44 | 309 | 306 | 50 |
| 16 | 192 | 190 | 44 | 186 | 44 | 45 | 185 | 194 | 44 | 302 | 305 | 231 |
| 17 | 192 | 44 | 192 | 189 | 44 | 44 | 194 | 190 | 242 | 299 | 50 | 231 |
| 18 | 193 | 45 | 197 | 192 | 277 | 192 | 196 | 45 | 236 | 306 | 50 | 234 |
| 19 | 240 | 189 | 192 | 44 | 276 | 189 | 195 | 45 | 232 | 301 | 879 | 241 |
| 20 | 44 | 190 | 191 | 44 | 282 | 186 | 44 | 287 | 247 | 46 | 1250 | 257 |
| 21 | 44 | 195 | 191 | 197 | 294 | 187 | 44 | 286 | 252 | 46 | 1100 | 46 |
| 22 | 176 | 191 | 44 | 192 | 273 | 188 | 180 | 286 | 44 | 306 | 731 | 46 |
| 23 | 165 | 191 | 44 | 192 | 44 | 44 | 190 | 297 | 44 | 308 | 731 | 249 |
| 24 | 162 | 44 | 191 | 191 | 44 | 45 | 190 | 745 | 228 | 297 | 72 | 240 |
| 25 | 154 | 45 | 191 | 192 | 184 | 190 | 190 | 502 | 220 | 305 | 72 | 242 |
| 26 | 151 | 192 | 191 | 44 | 200 | 189 | 189 | 712 | 227 | 304 | 755 | 240 |
| 27 | 39 | 191 | 190 | 44 | 201 | 192 | 44 | 718 | 239 | 50 | 800 | 245 |
| 28 | 39 | 191 | 191 | 191 | 193 | 188 | 45 | 763 | 241 | 49 | 790 | 45 |
| 29 | 212 | 191 | 44 | 190 | --- | 187 | 193 | 728 | 44 | 305 | 755 | 46 |
| 30 | 206 | 192 | 44 | 191 | --- | 44 | 193 | 738 | 44 | 305 | 740 | 179 |
| 31 | 185 | --- | 191 | 191 | --- | 45 | --- | 729 | --- | 309 | 60 | --- |
| TOTAL | 4677 | 4548 | 4462 | 5950 | 5406 | 4426 | 4539 | 9526 | 5154 | 7291 | 12630 | 8537 |
| MEAN | 151 | 152 | 144 | 192 | 193 | 143 | 151 | 307 | 172 | 235 | 407 | 285 |
| MAX | 240 | 198 | 197 | 492 | 397 | 194 | 196 | 763 | 252 | 313 | 1250 | 950 |
| MIN | 39 | 44 | 44 | 44 | 43 | 44 | 44 | 44 | 43 | 44 | 46 | 45 |
| (*) | -18 | -5 | -4 | +18 | +83 | +16 | +1 | +23 | -61 | -100 | +211 | -177 |
| MEAN† | 133 | 147 | 140 | 210 | 276 | 159 | 152 | 330 | 111 | 135 | 618 | 108 |
| CFSM† | .62 | .68 | .65 | .97 | 1.28 | .74 | .70 | 1.53 | .51 | .62 | 2.86 | .50 |
| IN.† | .71 | .76 | .75 | 1.12 | 1.33 | .85 | .79 | 1.76 | .57 | .72 | 3.30 | .56 |

CAL YR 1984 TOTAL 103322 MEAN 282 MAX 1280 MIN 20 MEAN† 274 CFSM† 1.27 IN.† 17.27
CAL YR 1984 TOTAL 77146 MEAN 211 MAX 1250 MIN 39 MEAN† 210 CFSM† .97 IN.† 13.20

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 02072500 SMITH RIVER AT BASSETT, VA

**LOCATION.**--Lat 36°46'12", long 80°00'04", Henry County, Hydrologic Unit 03010103, on left bank 25 ft upstream from bridge on State Highway 666 at north edge of North Bassett, 1.0 mi northwest of Bassett, 3.0 mi downstream from Town Creek, 5.6 mi upstream from Reed Creek, 6.2 mi downstream from Philpott Dam, and at mile 38.1.

**DRAINAGE AREA.**--259 mi$^2$.

**PERIOD OF RECORD.**--April 1939 to current year.

**REVISED RECORDS.**--WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 753.09 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

**REMARKS.**--No estimated daily discharges. Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 6.2 mi upstream. Diversion upstream from station by Henry County Public Service Authority has averaged less than 1.0 ft$^3$/s. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--46 years, 329 ft$^3$/s, 17.25 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 26,600 ft$^3$/s, Aug. 14, 1940, gage height, 18.28 ft; minimum, 19 ft$^3$/s, July 19, 1956; minimum daily, 44 ft$^3$/s, Aug. 23, 1964; minimum gage height, 1.06 ft, Sept. 18, 26, 1953.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Oct. 19, 1937, reached a stage of about 22.9 ft, from information by local residents, discharge, 38,000 ft$^3$/s, from rating curve extended above 23,000 ft$^3$/s on basis of backwater studies and records for station at Martinsville.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 5,480 ft$^3$/s, Aug. 18, gage height, 8.43 ft; minimum, 45 ft$^3$/s, July 24, gage height, 1.44 ft; minimum daily, 58 ft$^3$/s, July 14, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 276 | 217 | 84 | 242 | 320 | 235 | 231 | 226 | 100 | 366 | 339 | 79 |
| 2 | 240 | 231 | 82 | 246 | 278 | 79 | 228 | 230 | 72 | 336 | 343 | 883 |
| 3 | 234 | 73 | 249 | 511 | 128 | 76 | 233 | 232 | 266 | 340 | 64 | 926 |
| 4 | 236 | 81 | 252 | 470 | 260 | 233 | 231 | 68 | 284 | 331 | 62 | 1050 |
| 5 | 233 | 254 | 251 | 149 | 457 | 239 | 229 | 68 | 289 | 324 | 344 | 1040 |
| 6 | 73 | 241 | 287 | 113 | 458 | 236 | 74 | 226 | 284 | 66 | 337 | 1000 |
| 7 | 70 | 247 | 261 | 270 | 477 | 230 | 70 | 229 | 286 | 63 | 329 | 99 |
| 8 | 233 | 243 | 92 | 582 | 462 | 234 | 227 | 228 | 83 | 337 | 360 | 74 |
| 9 | 238 | 240 | 88 | 583 | 79 | 76 | 228 | 220 | 70 | 333 | 348 | 279 |
| 10 | 236 | 75 | 249 | 589 | 78 | 74 | 227 | 223 | 270 | 331 | 62 | 280 |
| 11 | 238 | 74 | 248 | 585 | 234 | 234 | 233 | 66 | 272 | 326 | 60 | 278 |
| 12 | 233 | 233 | 248 | 85 | 476 | 230 | 229 | 66 | 275 | 326 | 328 | 288 |
| 13 | 73 | 234 | 248 | 82 | 295 | 231 | 70 | 226 | 280 | 60 | 331 | 287 |
| 14 | 70 | 232 | 248 | 245 | 264 | 229 | 70 | 225 | 281 | 58 | 338 | 68 |
| 15 | 229 | 237 | 82 | 245 | 254 | 234 | 228 | 239 | 74 | 337 | 339 | 66 |
| 16 | 238 | 236 | 82 | 238 | 87 | 72 | 247 | 282 | 71 | 336 | 341 | 283 |
| 17 | 239 | 70 | 247 | 245 | 85 | 72 | 241 | 255 | 278 | 315 | 110 | 277 |
| 18 | 239 | 71 | 252 | 247 | 342 | 231 | 239 | 73 | 277 | 334 | 1890 | 269 |
| 19 | 292 | 245 | 247 | 81 | 342 | 228 | 237 | 68 | 273 | 313 | 917 | 275 |
| 20 | 73 | 242 | 246 | 75 | 346 | 228 | 70 | 318 | 235 | 61 | 1450 | 291 |
| 21 | 70 | 241 | 253 | 242 | 358 | 227 | 70 | 336 | 335 | 58 | 1360 | 67 |
| 22 | 232 | 238 | 86 | 237 | 335 | 240 | 217 | 341 | 72 | 337 | 817 | 65 |
| 23 | 207 | 236 | 83 | 237 | 77 | 106 | 226 | 855 | 64 | 345 | 857 | 282 |
| 24 | 266 | 71 | 247 | 235 | 77 | 87 | 237 | 972 | 254 | 322 | 104 | 277 |
| 25 | 204 | 73 | 245 | 237 | 233 | 240 | 260 | 649 | 252 | 379 | 90 | 278 |
| 26 | 195 | 239 | 244 | 72 | 267 | 234 | 233 | 804 | 262 | 360 | 846 | 276 |
| 27 | 71 | 239 | 242 | 70 | 259 | 236 | 72 | 821 | 277 | 101 | 1020 | 276 |
| 28 | 66 | 332 | 243 | 234 | 246 | 233 | 72 | 865 | 279 | 77 | 907 | 66 |
| 29 | 265 | 282 | 79 | 232 | --- | 248 | 230 | 834 | 73 | 349 | 863 | 62 |
| 30 | 256 | 256 | 78 | 233 | --- | 73 | 230 | 837 | 64 | 340 | 845 | 207 |
| 31 | 231 | --- | 246 | 240 | --- | 73 | --- | 832 | --- | 353 | 92 | --- |
| TOTAL | 6056 | 5983 | 6089 | 8152 | 7574 | 5698 | 5689 | 11914 | 6252 | 8314 | 16493 | 9948 |
| MEAN | 195 | 199 | 196 | 263 | 271 | 184 | 190 | 384 | 208 | 268 | 532 | 332 |
| MAX | 292 | 332 | 287 | 589 | 477 | 248 | 260 | 972 | 335 | 379 | 1890 | 1050 |
| MIN | 66 | 70 | 78 | 70 | 77 | 72 | 70 | 66 | 64 | 58 | 60 | 62 |
| (*) | -18 | -5 | -4 | +18 | +83 | +16 | +1 | +23 | -61 | -100 | +211 | -177 |
| MEAN† | 177 | 194 | 192 | 281 | 354 | 200 | 191 | 407 | 147 | 168 | 743 | 155 |
| CFSM† | .68 | .75 | .74 | 1.08 | 1.37 | .77 | .74 | 1.57 | .57 | .65 | 2.87 | .60 |
| IN.† | .79 | .84 | .85 | 1.25 | 1.42 | .89 | .82 | 1.81 | .63 | .75 | 3.31 | .67 |

CAL YR 1984 TOTAL 131467 MEAN 359 MAX 1510 MIN 66 MEAN† 351 CFSM† 1.36 IN.† 18.45
WTR YR 1985 TOTAL 98162 MEAN 269 MAX 1890 MIN 58 MEAN† 268 CFSM† 1.03 IN.† 14.05

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 02073000 SMITH RIVER AT MARTINSVILLE, VA

**LOCATION.**--Lat 36°39'40", long 79°52'51", Henry County, Hydrologic Unit 03010103, on right bank at south edge of Martinsville, 800 ft downstream from bridge on U.S. Highways 58 and 220, and 5.0 mi downstream from Beaver Creek.

**DRAINAGE AREA.**--380 mi$^2$.

**PERIOD OF RECORD.**--August 1929 to current year.

**REVISED RECORDS.**--WSP 1032: 1933-35(M), 1936-39, 1940-41(P). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 657.22 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--No estimated daily discharges. Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 19.6 mi upstream from station. Some additional regulation by powerplant 1,000 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--56 years, 455 ft$^3$/s, 16.26 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 39,000 ft$^3$/s, Oct. 19, 1937, gage height, 21.50 ft, from rating curve extended above 17,000 ft$^3$/s on basis of computations of flow over dam at gage heights 16.76 ft and 21.50 ft; minimum, 3.8 ft$^3$/s, Mar. 19, 1955; minimum daily, 19 ft$^3$/s, Oct. 6, 1935; minimum gage height, 0.69 ft, Sept. 8, 1969.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 21,900 ft$^3$/s, Aug. 18, gage height, 15.43 ft; minimum, 7.0 ft$^3$/s, Nov. 24, gage height, 0.85 ft; minimum daily, 80 ft$^3$/s, July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 487 | 314 | 126 | 218 | 942 | 385 | 353 | 290 | 464 | 436 | 913 | 164 |
| 2 | 344 | 329 | 146 | 355 | 945 | 132 | 315 | 347 | 139 | 443 | 580 | 953 |
| 3 | 314 | 169 | 365 | 1130 | 419 | 155 | 316 | 376 | 342 | 433 | 263 | 1110 |
| 4 | 330 | 183 | 324 | 1260 | 475 | 361 | 319 | 117 | 407 | 393 | 135 | 1280 |
| 5 | 330 | 307 | 362 | 388 | 500 | 341 | 347 | 110 | 411 | 437 | 396 | 1280 |
| 6 | 304 | 359 | 451 | 265 | 669 | 326 | 142 | 334 | 421 | 258 | 440 | 1250 |
| 7 | 124 | 346 | 315 | 260 | 642 | 314 | 120 | 303 | 391 | 91 | 567 | 414 |
| 8 | 216 | 335 | 182 | 728 | 594 | 375 | 297 | 314 | 248 | 326 | 671 | 156 |
| 9 | 328 | 351 | 160 | 672 | 261 | 130 | 350 | 308 | 140 | 400 | 479 | 339 |
| 10 | 360 | 286 | 352 | 692 | 185 | 146 | 308 | 318 | 306 | 411 | 194 | 393 |
| 11 | 304 | 163 | 317 | 678 | 346 | 351 | 400 | 134 | 372 | 415 | 132 | 388 |
| 12 | 327 | 329 | 310 | 278 | 1310 | 330 | 327 | 140 | 359 | 387 | 360 | 398 |
| 13 | 265 | 359 | 317 | 150 | 601 | 318 | 122 | 322 | 367 | 259 | 396 | 397 |
| 14 | 154 | 332 | 331 | 205 | 459 | 319 | 123 | 301 | 363 | 89 | 370 | 197 |
| 15 | 225 | 333 | 112 | 332 | 400 | 368 | 353 | 309 | 259 | 330 | 432 | 128 |
| 16 | 331 | 346 | 126 | 312 | 208 | 118 | 443 | 519 | 105 | 422 | 499 | 322 |
| 17 | 325 | 141 | 337 | 338 | 201 | 130 | 355 | 469 | 346 | 391 | 876 | 389 |
| 18 | 329 | 137 | 320 | 329 | 414 | 343 | 342 | 102 | 365 | 381 | 9760 | 372 |
| 19 | 333 | 385 | 311 | 300 | 449 | 304 | 313 | 131 | 354 | 378 | 1560 | 364 |
| 20 | 308 | 353 | 304 | 136 | 444 | 314 | 187 | 349 | 318 | 228 | 1900 | 382 |
| 21 | 148 | 362 | 346 | 277 | 469 | 312 | 134 | 366 | 364 | 80 | 1930 | 178 |
| 22 | 337 | 275 | 112 | 311 | 439 | 408 | 341 | 380 | 260 | 451 | 1090 | 124 |
| 23 | 305 | 342 | 132 | 324 | 229 | 227 | 310 | 1720 | 90 | 534 | 1120 | 258 |
| 24 | 536 | 153 | 288 | 308 | 174 | 202 | 346 | 1560 | 311 | 408 | 511 | 396 |
| 25 | 338 | 173 | 297 | 322 | 336 | 378 | 410 | 1030 | 307 | 857 | 299 | 342 |
| 26 | 297 | 343 | 341 | 145 | 447 | 331 | 384 | 958 | 362 | 652 | 965 | 338 |
| 27 | 151 | 331 | 308 | 141 | 399 | 331 | 117 | 1030 | 343 | 440 | 1320 | 346 |
| 28 | 163 | 610 | 327 | 330 | 377 | 326 | 133 | 1080 | 352 | 255 | 1240 | 197 |
| 29 | 387 | 464 | 112 | 307 | --- | 295 | 352 | 1080 | 209 | 494 | 1130 | 115 |
| 30 | 354 | 395 | 115 | 317 | --- | 158 | 324 | 1040 | 105 | 472 | 1100 | 199 |
| 31 | 329 | --- | 363 | 356 | --- | 155 | --- | 1050 | --- | 1050 | 360 | --- |
| TOTAL | 9383 | 9305 | 8309 | 12164 | 13334 | 8683 | 8683 | 16887 | 9180 | 12601 | 31988 | 13169 |
| MEAN | 303 | 310 | 268 | 392 | 476 | 280 | 289 | 545 | 306 | 406 | 1032 | 439 |
| MAX | 536 | 610 | 451 | 1260 | 1310 | 408 | 443 | 1720 | 464 | 1050 | 9760 | 1280 |
| MIN | 124 | 137 | 112 | 136 | 174 | 118 | 117 | 102 | 90 | 80 | 132 | 115 |
| (*) | -18 | -5 | -4 | +18 | +83 | +16 | +1 | +23 | -61 | -100 | +211 | -177 |
| MEAN† | 285 | 305 | 264 | 410 | 559 | 296 | 290 | 568 | 245 | 306 | 1243 | 262 |
| CFSM† | .75 | .80 | .69 | 1.08 | 1.47 | .78 | .76 | 1.49 | .64 | .81 | 3.27 | .69 |
| IN.† | .86 | .90 | .80 | 1.24 | 1.53 | .90 | .85 | 1.72 | .72 | .93 | 3.77 | .77 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 193466 | MEAN | 529 | MAX | 2770 | MIN | 103 | MEAN† | 521 | CFSM† | 1.37 | IN.† | 18.62 |
| WTR YR 1985 | TOTAL | 153686 | MEAN | 421 | MAX | 9760 | MIN | 80 | MEAN† | 420 | CFSM† | 1.11 | IN.† | 15.01 |

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 02074000 SMITH RIVER AT EDEN, NC

LOCATION.--Lat 36°31'31", long 79°45'57", Rockingham County, Hydrologic Unit 03010103, on right bank at Eden, 0.3 mi downstream from bridge on State Highway 14, 0.8 mi upstream from bridge on Secondary Road 1714, 1.2 mi south of Virginia-North Carolina State line, 1.3 mi downstream from Stuart Creek, and 3.9 mi upstream from mouth.

DRAINAGE AREA.--538 mi$^2$.

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1970, published as "at Spray".

REVISED RECORDS.--WSP 1433: 1946.

GAGE.--Water-stage recorder. Datum of gage is 539.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 40 mi upstream, usable capacity, 6,325,000 ft$^3$. Additional regulation by hydroelectric plant at Martinsville, VA, 18 mi upstream. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--46 years, 621 ft$^3$/s, 15.68 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft$^3$/s, Aug. 15, 1940, gage height, 19.28 ft, from rating curve extended above 12,000 ft$^3$/s on basis of computation of peak flow over dam 1.5 mi downstream; minimum, 38 ft$^3$/s, Aug. 7, 1967; minimum daily, 46 ft$^3$/s, Aug. 14, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,600 ft$^3$/s, Aug. 18, gage height, 15.40 ft; minimum, 84 ft$^3$/s, July 21, 22, gage height, 1.45 ft; minimum daily, 108 ft$^3$/s, July 21.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 627 | 452 | 410 | 342 | 1320 | 471 | 398 | 415 | 870 | 276 | 1870 | 220 |
| 2 | 473 | 376 | 200 | 445 | 1900 | 381 | 405 | 362 | 154 | 493 | 1040 | 471 |
| 3 | 404 | 361 | 387 | 1220 | 974 | 214 | 400 | 401 | 307 | 464 | 644 | 1100 |
| 4 | 390 | 185 | 420 | 2440 | 713 | 409 | 400 | 326 | 411 | 366 | 200 | 1240 |
| 5 | 380 | 428 | 441 | 1030 | 690 | 440 | 404 | 143 | 437 | 465 | 261 | 1260 |
| 6 | 377 | 439 | 687 | 584 | 828 | 423 | 355 | 297 | 477 | 397 | 448 | 1190 |
| 7 | 163 | 405 | 534 | 532 | 825 | 410 | 165 | 348 | 441 | 121 | 584 | 1000 |
| 8 | 277 | 347 | 410 | 683 | 746 | 421 | 303 | 330 | 395 | 192 | 1090 | 185 |
| 9 | 368 | 443 | 233 | 827 | 532 | 355 | 444 | 357 | 170 | 402 | 805 | 282 |
| 10 | 374 | 379 | 386 | 816 | 330 | 196 | 396 | 352 | 313 | 400 | 595 | 452 |
| 11 | 368 | 196 | 424 | 800 | 414 | 390 | 398 | 298 | 387 | 488 | 192 | 415 |
| 12 | 370 | 349 | 415 | 669 | 1740 | 417 | 365 | 167 | 385 | 389 | 240 | 426 |
| 13 | 299 | 383 | 413 | 223 | 1120 | 405 | 370 | 315 | 381 | 422 | 439 | 374 |
| 14 | 219 | 386 | 409 | 347 | 709 | 405 | 164 | 345 | 376 | 127 | 433 | 390 |
| 15 | 249 | 386 | 362 | 426 | 592 | 407 | 348 | 349 | 336 | 229 | 400 | 174 |
| 16 | 381 | 392 | 175 | 407 | 398 | 335 | 496 | 650 | 134 | 437 | 453 | 201 |
| 17 | 367 | 336 | 355 | 425 | 344 | 177 | 466 | 541 | 281 | 432 | 621 | 454 |
| 18 | 369 | 168 | 398 | 442 | 502 | 366 | 417 | 371 | 377 | 394 | 15300 | 337 |
| 19 | 373 | 373 | 404 | 434 | 565 | 392 | 406 | 211 | 363 | 390 | 3220 | 392 |
| 20 | 413 | 425 | 399 | 203 | 587 | 388 | 353 | 327 | 360 | 373 | 2480 | 390 |
| 21 | 172 | 391 | 415 | 300 | 586 | 392 | 167 | 456 | 365 | 108 | 2390 | 344 |
| 22 | 326 | 331 | 389 | 579 | 576 | 429 | 328 | 476 | 329 | 140 | 1440 | 181 |
| 23 | 382 | 434 | 178 | 536 | 395 | 528 | 359 | 1330 | 125 | 648 | 1370 | 175 |
| 24 | 627 | 300 | 289 | 501 | 285 | 298 | 372 | 1970 | 219 | 442 | 1140 | 424 |
| 25 | 521 | 205 | 388 | 526 | 395 | 444 | 481 | 1180 | 340 | 618 | 778 | 338 |
| 26 | 382 | 340 | 433 | 328 | 605 | 436 | 427 | 1070 | 326 | 1910 | 662 | 373 |
| 27 | 271 | 386 | 384 | 231 | 534 | 426 | 354 | 1050 | 333 | 786 | 1360 | 381 |
| 28 | 243 | 591 | 388 | 355 | 485 | 419 | 164 | 1020 | 344 | 442 | 1350 | 360 |
| 29 | 489 | 832 | 356 | 412 | --- | 384 | 350 | 1060 | 327 | 471 | 1170 | 162 |
| 30 | 465 | 506 | 161 | 398 | --- | 313 | 333 | 987 | 130 | 572 | 1130 | 157 |
| 31 | 361 | --- | 345 | 461 | --- | 258 | --- | 1020 | --- | 714 | 979 | --- |
| TOTAL | 11480 | 11525 | 11588 | 17922 | 19690 | 11729 | 10788 | 18524 | 10193 | 14108 | 45084 | 13848 |
| MEAN | 370 | 384 | 374 | 578 | 703 | 378 | 360 | 598 | 340 | 455 | 1454 | 462 |
| MAX | 627 | 832 | 687 | 2440 | 1900 | 528 | 496 | 1970 | 870 | 1910 | 15300 | 1260 |
| MIN | 163 | 168 | 161 | 203 | 285 | 177 | 164 | 143 | 125 | 108 | 192 | 157 |
| (†) | -18 | -5 | -4 | +18 | +83 | +16 | +1 | +23 | -61 | -100 | +211 | -177 |

CAL YR 1984 TOTAL 263614 MEAN 720 MAX 5220 MIN 149 MEAN‡ 712 CFSM‡ 1.32 IN.‡ 18.02
WTR YR 1985 TOTAL 196479 MEAN 538 MAX 15300 MIN 108 MEAN‡ 537 CFSM‡ 1.00 IN.‡ 13.55

† Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

## 02074500 SANDY RIVER NEAR DANVILLE, VA

**LOCATION.**--Lat 36°37'10", long 79°30'16", Pittsylvania County, Hydrologic Unit 03010103, on right bank 200 ft downstream from Hickory Forest Creek, 400 ft upstream from bridge on State Highway 863 between Callahans Store and Mount Cross, 5.5 mi northwest of western corporate limits of Danville, and 5.8 mi upstream from mouth.

**DRAINAGE AREA.**--112 mi².

**PERIOD OF RECORD.**--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 972: 1930-41. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 460.38 ft above National Geodetic Vertical Datum of 1929. Prior to June 26, 1942, at site 1,200 ft downstream at datum 5.57 ft lower.

**REMARKS.**--Estimated daily discharges: Jan. 16, 17, 22-30. Records good except those for periods with ice effect, Jan. 16, 17, 22-30, which are fair. Diurnal fluctuation at low flow caused by small mill upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--56 years, 107 ft³/s, 12.97 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 23,000 ft³/s, Aug. 14, 1940, gage height, 14.8 ft, present datum, from floodmarks, from rating curve extended above 11,000 ft³/s; minimum, 3 ft³/s, Sept. 29, 1930, gage height, 0.40 ft, site and datum then in use; minimum daily, 8 ft³/s, Aug. 29, 31, Sept. 1, 2, 1932.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1330 | *10,900 | *10.10 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 20 ft³/s, July 23, gage height, 0.98 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 125 | 70 | 83 | 63 | 349 | 89 | 72 | 50 | 46 | 47 | 147 | 70 |
| 2 | 71 | 68 | 76 | 64 | 736 | 88 | 69 | 49 | 42 | 49 | 164 | 68 |
| 3 | 61 | 63 | 84 | 415 | 290 | 84 | 68 | 58 | 44 | 40 | 67 | 65 |
| 4 | 58 | 65 | 76 | 903 | 169 | 83 | 68 | 50 | 42 | 38 | 50 | 61 |
| 5 | 56 | 72 | 84 | 353 | 142 | 83 | 68 | 48 | 44 | 36 | 43 | 58 |
| 6 | 55 | 71 | 163 | 174 | 146 | 78 | 68 | 47 | 50 | 35 | 41 | 56 |
| 7 | 56 | 64 | 107 | 132 | 138 | 76 | 64 | 46 | 47 | 35 | 54 | 53 |
| 8 | 56 | 63 | 88 | 109 | 114 | 78 | 65 | 45 | 53 | 31 | 129 | 51 |
| 9 | 56 | 63 | 82 | 96 | 110 | 83 | 64 | 44 | 44 | 29 | 121 | 50 |
| 10 | 55 | 63 | 78 | 88 | 104 | 78 | 63 | 45 | 40 | 31 | 73 | 53 |
| 11 | 55 | 67 | 75 | 84 | 96 | 77 | 64 | 48 | 39 | 44 | 53 | 49 |
| 12 | 54 | 65 | 73 | 79 | 391 | 78 | 64 | 61 | 39 | 33 | 45 | 47 |
| 13 | 54 | 62 | 72 | 76 | 244 | 73 | 64 | 50 | 36 | 37 | 41 | 47 |
| 14 | 53 | 61 | 71 | 75 | 154 | 74 | 64 | 44 | 35 | 47 | 38 | 44 |
| 15 | 53 | 61 | 69 | 72 | 127 | 73 | 67 | 43 | 35 | 35 | 36 | 44 |
| 16 | 53 | 63 | 69 | 66 | 112 | 71 | 71 | 85 | 35 | 35 | 45 | 43 |
| 17 | 53 | 61 | 70 | 77 | 106 | 72 | 69 | 65 | 38 | 28 | 131 | 42 |
| 18 | 55 | 61 | 69 | 81 | 100 | 70 | 63 | 52 | 35 | 25 | 6780 | 42 |
| 19 | 55 | 72 | 69 | 78 | 96 | 69 | 62 | 45 | 33 | 25 | 599 | 41 |
| 20 | 55 | 72 | 69 | 73 | 92 | 70 | 60 | 43 | 31 | 24 | 302 | 41 |
| 21 | 54 | 64 | 72 | 59 | 88 | 69 | 58 | 42 | 30 | 23 | 286 | 41 |
| 22 | 58 | 63 | 75 | 64 | 88 | 80 | 56 | 43 | 29 | 21 | 160 | 42 |
| 23 | 61 | 63 | 68 | 60 | 87 | 113 | 55 | 118 | 29 | 22 | 113 | 42 |
| 24 | 160 | 63 | 66 | 59 | 86 | 92 | 55 | 149 | 30 | 23 | 133 | 41 |
| 25 | 94 | 63 | 66 | 60 | 87 | 84 | 59 | 89 | 28 | 63 | 260 | 39 |
| 26 | 72 | 63 | 63 | 61 | 130 | 77 | 54 | 65 | 27 | 232 | 152 | 37 |
| 27 | 66 | 63 | 65 | 64 | 108 | 76 | 53 | 55 | 25 | 91 | 141 | 37 |
| 28 | 66 | 146 | 66 | 67 | 93 | 75 | 56 | 50 | 25 | 82 | 104 | 36 |
| 29 | 139 | 182 | 64 | 69 | --- | 75 | 54 | 47 | 27 | 69 | 86 | 36 |
| 30 | 108 | 97 | 64 | 70 | --- | 74 | 50 | 47 | 38 | 57 | 81 | 36 |
| 31 | 75 | --- | 65 | 86 | --- | 72 | --- | 47 | --- | 54 | 80 | --- |
| TOTAL | 2142 | 2174 | 2361 | 3877 | 4583 | 2434 | 1867 | 1770 | 1096 | 1441 | 10555 | 1412 |
| MEAN | 69.1 | 72.5 | 76.2 | 125 | 164 | 78.5 | 62.2 | 57.1 | 36.5 | 46.5 | 340 | 47.1 |
| MAX | 160 | 182 | 163 | 903 | 736 | 113 | 72 | 149 | 53 | 232 | 6780 | 70 |
| MIN | 53 | 61 | 63 | 59 | 86 | 69 | 50 | 42 | 25 | 21 | 36 | 36 |
| CFSM | .62 | .65 | .68 | 1.12 | 1.46 | .70 | .56 | .51 | .33 | .42 | 3.04 | .42 |
| IN. | .71 | .72 | .78 | 1.29 | 1.52 | .81 | .62 | .59 | .36 | .48 | 3.51 | .47 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 51863 | MEAN | 142 | MAX | 2350 | MIN | 44 | CFSM | 1.27 | IN. | 17.23 |
| WTR YR 1985 | TOTAL | 35712 | MEAN | 97.8 | MAX | 6780 | MIN | 21 | CFSM | .87 | IN. | 11.86 |

## 02075000 DAN RIVER AT DANVILLE, VA

**LOCATION.**--Lat 36°35'15", long 79°22'55", Danville City, Hydrologic Unit 03010104, on left bank 50 ft downstream from Southern Railway bridge, 1,000 ft upstream from Fall Creek, and at mile 62.7.

**DRAINAGE AREA.**--2,050 mi$^2$, approximately.

**PERIOD OF RECORD.**--August 1934 to current year. Gage-height records collected in this vicinity 1890-1934, at same site 1934-49, and at Main Street bridge, 0.25 mi upstream 1949-68, are contained in reports of the National Weather Service.

**REVISED RECORDS.**--WSP 972: 1936.

**GAGE.**--Water-stage recorder. Datum of gage is 379.29 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--No estimated daily discharges. Records good prior to Aug. 22 and fair thereafter. Diurnal fluctuation caused by mills upstream. Since August 1950, flow regulated by Philpott Lake (station 02071900) 74.7 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--51 years, 2,308 ft$^3$/s, 15.29 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 75,000 ft$^3$/s, Aug. 15, 1940, gage height, 20.96 ft; maximum gage height, 21.34 ft, June 22, 1972, backwater from debris; minimum discharge, 11 ft$^3$/s, Sept. 5, 1966, gage height, 1.18 ft; minimum daily, 110 ft$^3$/s, Sept. 5, 1966.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 33,800 ft$^3$/s, Aug. 18, gage height, 14.78 ft; minimum, 355 ft$^3$/s, July 31, gage height, 1.84 ft; minimum daily, 426 ft$^3$/s, July 22.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1370 | 1150 | 1470 | 1120 | 3250 | 1570 | 1020 | 949 | 1490 | 688 | 2760 | 2110 |
| 2 | 1890 | 1100 | 1150 | 1040 | 8760 | 1480 | 1180 | 939 | 1070 | 913 | 3000 | 1410 |
| 3 | 1300 | 1050 | 1100 | 2490 | 7160 | 1280 | 1120 | 999 | 746 | 996 | 2030 | 1820 |
| 4 | 1130 | 942 | 1290 | 7260 | 3590 | 1200 | 1090 | 1070 | 905 | 932 | 1300 | 2140 |
| 5 | 1060 | 934 | 1270 | 5970 | 2540 | 1360 | 1110 | 889 | 933 | 843 | 969 | 2200 |
| 6 | 1030 | 1330 | 1830 | 2990 | 2530 | 1300 | 1120 | 751 | 986 | 900 | 1030 | 2160 |
| 7 | 993 | 1280 | 1930 | 2010 | 2610 | 1270 | 960 | 897 | 1730 | 765 | 1050 | 2080 |
| 8 | 833 | 1130 | 1520 | 1710 | 2360 | 1240 | 936 | 880 | 1430 | 550 | 1360 | 1340 |
| 9 | 924 | 1080 | 1270 | 1820 | 1990 | 1310 | 1050 | 882 | 1160 | 666 | 1950 | 1030 |
| 10 | 982 | 1120 | 1110 | 1690 | 1530 | 1140 | 1100 | 838 | 863 | 741 | 1490 | 1280 |
| 11 | 988 | 1100 | 1250 | 1630 | 1480 | 1080 | 1040 | 858 | 893 | 803 | 1080 | 1300 |
| 12 | 985 | 918 | 1200 | 1600 | 3260 | 1240 | 1050 | 823 | 907 | 865 | 790 | 1170 |
| 13 | 983 | 1070 | 1170 | 1250 | 5890 | 1210 | 1030 | 828 | 990 | 908 | 859 | 1140 |
| 14 | 891 | 1040 | 1160 | 1040 | 3380 | 1170 | 956 | 913 | 892 | 1030 | 884 | 1060 |
| 15 | 851 | 1050 | 1170 | 1140 | 2420 | 1160 | 883 | 845 | 830 | 883 | 862 | 961 |
| 16 | 895 | 1030 | 1010 | 1150 | 2050 | 1170 | 1110 | 1690 | 783 | 847 | 891 | 801 |
| 17 | 958 | 1050 | 939 | 1130 | 1710 | 1010 | 1440 | 2720 | 644 | 932 | 1050 | 872 |
| 18 | 973 | 901 | 1130 | 1280 | 1610 | 970 | 1470 | 1780 | 835 | 838 | 19800 | 1010 |
| 19 | 1010 | 894 | 1110 | 1250 | 1660 | 1130 | 1250 | 1150 | 853 | 726 | 31500 | 951 |
| 20 | 1000 | 1240 | 1110 | 1180 | 1590 | 1100 | 1150 | 963 | 780 | 704 | 22600 | 962 |
| 21 | 1020 | 1170 | 1130 | 938 | 1550 | 1110 | 1010 | 1030 | 742 | 632 | 9100 | 959 |
| 22 | 863 | 1100 | 1180 | 929 | 1500 | 1150 | 878 | 1090 | 744 | 426 | 7160 | 888 |
| 23 | 1100 | 1010 | 1020 | 1200 | 1450 | 1500 | 1020 | 1400 | 682 | 663 | 3870 | 752 |
| 24 | 1210 | 1090 | 940 | 1320 | 1290 | 1600 | 975 | 3450 | 511 | 833 | 3050 | 768 |
| 25 | 1450 | 929 | 1070 | 1190 | 1250 | 1480 | 1040 | 3040 | 620 | 987 | 2690 | 983 |
| 26 | 1300 | 892 | 1080 | 1370 | 1650 | 1440 | 1180 | 2130 | 669 | 3240 | 2910 | 916 |
| 27 | 1100 | 1040 | 1110 | 1210 | 2260 | 1230 | 1130 | 1840 | 667 | 2900 | 3110 | 909 |
| 28 | 981 | 1330 | 1070 | 974 | 1810 | 1210 | 926 | 1630 | 671 | 2230 | 3730 | 898 |
| 29 | 1540 | 2240 | 1110 | 1140 | --- | 1190 | 853 | 1570 | 687 | 2460 | 2820 | 875 |
| 30 | 1720 | 2030 | 950 | 1130 | --- | 1170 | 1010 | 1540 | 758 | 1880 | 2330 | 679 |
| 31 | 1320 | --- | 884 | 1260 | --- | 1060 | --- | 1500 | --- | 1670 | 2520 | --- |
| TOTAL | 34650 | 34240 | 36733 | 53411 | 74130 | 38530 | 32087 | 41884 | 26471 | 34451 | 140545 | 36424 |
| MEAN | 1118 | 1141 | 1185 | 1723 | 2648 | 1243 | 1070 | 1351 | 882 | 1111 | 4534 | 1214 |
| MAX | 1890 | 2240 | 1930 | 7260 | 8760 | 1600 | 1470 | 3450 | 1730 | 3240 | 31500 | 2200 |
| MIN | 833 | 892 | 884 | 929 | 1250 | 970 | 853 | 751 | 511 | 426 | 790 | 679 |
| (*) | -18 | -5 | -4 | +18 | +83 | +16 | +1 | +23 | -61 | -100 | +211 | -177 |
| MEAN† | 1100 | 1136 | 1181 | 1741 | 2731 | 1259 | 1071 | 1374 | 821 | 1011 | 4745 | 1037 |
| CFSM† | .54 | .55 | .58 | .85 | 1.33 | .61 | .52 | .67 | .40 | .49 | 2.31 | .51 |
| IN.† | .62 | .62 | .66 | .98 | 1.39 | .71 | .58 | .77 | .45 | .57 | 2.67 | .56 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 966940 | MEAN | 2642 | MAX 25700 | MIN | 723 | MEAN† | 2634 | CFSM† 1.28 | IN.† 17.49 |
| WTR YR 1985 | TOTAL | 583556 | MEAN | 1599 | MAX 31500 | MIN | 426 | MEAN† | 1598 | CFSM† .78 | IN.† 10.58 |

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 02075500 DAN RIVER AT PACES, VA

LOCATION.--Lat 36°38'32", long 79°05'23", Halifax County, Hydrologic Unit 03010104, on right bank 100 ft upstream from bridge on State Highway 658, 0.5 mi southeast of Paces, 0.5 mi upstream from Big Toby Creek, 2.7 mi upstream from Birch Creek, and at mile 36.0.

DRAINAGE AREA.--2,550 mi², approximately.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 322.48 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation by mills 23 mi upstream at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 101.4 mi upstream. Gage-height and U.S. Army Corps of Engineers satellite telemeters at station.

AVERAGE DISCHARGE.--34 years (water years 1952-85), 2,708 ft³/s, 14.42 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,800 ft³/s, June 23, 1972, gage height, 33.15 ft, from rating curve extended above 32,000 ft³/s; minimum, 193 ft³/s, Sept. 4, 1956, gage height, 1.71 ft; minimum daily, 244 ft³/s, Sept. 4, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 32.3 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,600 ft³/s, Aug. 20, gage height, 23.74 ft; minimum, 426 ft³/s, July 23, gage height, 2.29 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1360 | 1440 | 2030 | 1090 | 4250 | 2280 | 1330 | 1170 | 1790 | 967 | 2380 | 3010 |
| 2 | 2040 | 1330 | 1640 | 1350 | 11300 | 2060 | 1370 | 1130 | 1700 | 865 | 3610 | 1780 |
| 3 | 1870 | 1240 | 1390 | 3520 | 12500 | 1920 | 1470 | 1180 | 1030 | 1190 | 3000 | 1800 |
| 4 | 1320 | 1180 | 1480 | 10500 | 7050 | 1660 | 1390 | 1270 | 885 | 1160 | 2020 | 2330 |
| 5 | 1200 | 1020 | 1590 | 11800 | 4060 | 1710 | 1380 | 1290 | 1120 | 1080 | 1340 | 2370 |
| 6 | 1130 | 1260 | 2480 | 7010 | 3560 | 1750 | 1390 | 996 | 1210 | 1020 | 1150 | 2310 |
| 7 | 1100 | 1590 | 2740 | 3630 | 3750 | 1680 | 1340 | 907 | 1650 | 1010 | 1330 | 2220 |
| 8 | 982 | 1380 | 2210 | 2730 | 3450 | 1620 | 1170 | 1080 | 1940 | 794 | 1380 | 2070 |
| 9 | 903 | 1250 | 1780 | 2420 | 2880 | 1640 | 1180 | 1050 | 1520 | 588 | 2290 | 1220 |
| 10 | 1040 | 1250 | 1470 | 2340 | 2350 | 1650 | 1330 | 1020 | 1260 | 775 | 2120 | 1270 |
| 11 | 1070 | 1280 | 1430 | 2210 | 2030 | 1410 | 1320 | 996 | 994 | 868 | 1690 | 1490 |
| 12 | 1080 | 1170 | 1510 | 2120 | 3440 | 1490 | 1270 | 1020 | 1060 | 966 | 1090 | 1380 |
| 13 | 1070 | 1100 | 1450 | 1970 | 7900 | 1570 | 1290 | 973 | 1100 | 989 | 922 | 1280 |
| 14 | 1030 | 1210 | 1420 | 1450 | 5440 | 1520 | 1300 | 980 | 1140 | 1370 | 1070 | 1190 |
| 15 | 912 | 1200 | 1380 | 1470 | 3620 | 1480 | 1150 | 1050 | 995 | 1300 | 1030 | 1120 |
| 16 | 924 | 1210 | 1390 | 1520 | 2930 | 1460 | 1180 | 1290 | 948 | 1150 | 993 | 913 |
| 17 | 1010 | 1190 | 1170 | 1470 | 2470 | 1440 | 1530 | 3150 | 861 | 1050 | 1060 | 850 |
| 18 | 1050 | 1170 | 1230 | 1560 | 2220 | 1250 | 1870 | 2350 | 743 | 1100 | 8180 | 1090 |
| 19 | 1090 | 1060 | 1430 | 1680 | 2160 | 1290 | 1680 | 1840 | 1010 | 908 | 21000 | 1030 |
| 20 | 1100 | 1260 | 1400 | 1590 | 2150 | 1410 | 1470 | 1260 | 947 | 793 | 26600 | 1030 |
| 21 | 1150 | 1440 | 1380 | 1190 | 2040 | 1380 | 1360 | 1140 | 864 | 760 | 21700 | 1040 |
| 22 | 981 | 1330 | 1390 | 903 | 1990 | 1420 | 1150 | 1320 | 807 | 630 | 9240 | 1030 |
| 23 | 1030 | 1220 | 1430 | 1050 | 1920 | 1710 | 1090 | 1500 | 808 | 457 | 5640 | 874 |
| 24 | 1270 | 1190 | 1170 | 1410 | 1810 | 2100 | 1220 | 3070 | 688 | 880 | 3850 | 804 |
| 25 | 1530 | 1210 | 1150 | 1490 | 1660 | 2060 | 1200 | 3940 | 523 | 969 | 3410 | 942 |
| 26 | 1590 | 1030 | 1280 | 1370 | 2110 | 1890 | 1290 | 2930 | 679 | 2160 | 3790 | 969 |
| 27 | 1340 | 1040 | 1270 | 1380 | 3190 | 1700 | 1400 | 2340 | 695 | 4370 | 3890 | 974 |
| 28 | 1190 | 1270 | 1300 | 1260 | 2760 | 1570 | 1300 | 2070 | 711 | 3020 | 4290 | 975 |
| 29 | 1600 | 2430 | 1270 | 1300 | --- | 1560 | 1050 | 1880 | 720 | 3080 | 3720 | 929 |
| 30 | 2160 | 2760 | 1310 | 1450 | --- | 1530 | 1070 | 1870 | 861 | 2520 | 3030 | 795 |
| 31 | 1860 | --- | 1090 | 1560 | --- | 1470 | --- | 1800 | --- | 2170 | 3010 | --- |
| TOTAL | 38982 | 39710 | 46660 | 77793 | 106990 | 50680 | 39540 | 49862 | 31259 | 40959 | 149825 | 41085 |
| MEAN | 1257 | 1324 | 1505 | 2509 | 3821 | 1635 | 1318 | 1608 | 1042 | 1321 | 4833 | 1370 |
| MAX | 2160 | 2760 | 2740 | 11800 | 12500 | 2280 | 1870 | 3940 | 1940 | 4370 | 26600 | 3010 |
| MIN | 903 | 1020 | 1090 | 903 | 1660 | 1250 | 1050 | 907 | 523 | 457 | 922 | 795 |
| (*) | -18 | -5 | -4 | +18 | +83 | +16 | +1 | +23 | -61 | -100 | +211 | -177 |
| MEAN† | 1239 | 1319 | 1501 | 2527 | 3904 | 1651 | 1319 | 1631 | 981 | 1221 | 5044 | 1193 |
| CFSM† | .49 | .52 | .59 | .99 | 1.53 | .65 | .52 | .64 | .38 | .48 | 1.98 | .47 |
| IN.† | .56 | .58 | .68 | 1.14 | 1.59 | .75 | .58 | .74 | .43 | .55 | 2.28 | .52 |

CAL YR 1984 TOTAL 1187539 MEAN 3245 MAX 25500 MIN 719 MEAN† 3237 CFSM† 1.27 IN.† 17.26
WTR YR 1984 TOTAL 713345 MEAN 1954 MAX 26600 MIN 457 MEAN† 1953 CFSM† .77 IN.† 10.40

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 02075500 DAN RIVER AT PACES, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1954 to September 1956.
WATER TEMPERATURE: January 1954 to September 1956.
SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 06... | 08:45 | 2480 | 130 | 127 | 7.2 | 7.3 | 5.5 | 741 | 30 | 11.9 | 97 |
| JAN 23... | 09:00 | 1070 | 200 | 208 | 7.2 | 6.9 | 0.0 | 745 | 4.0 | 15.3 | 107 |
| MAR 14... | 13:50 | 1410 | 175 | 168 | 7.4 | 7.3 | 12.0 | 760 | 3.5 | 9.4 | 87 |
| APR 25... | 10:30 | 1240 | 195 | 195 | 7.3 | 7.2 | 22.5 | 742 | 3.0 | 7.0 | 83 |
| JUN 11... | 10:00 | 977 | 140 | 142 | 7.2 | 6.9 | 25.5 | 743 | 90 | 6.1 | 77 |
| AUG 06... | 12:15 | 1130 | 126 | 128 | 6.9 | 7.5 | 24.0 | 750 | 30 | 7.1 | 86 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | ALKA-LINITY FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 06... | K3600 | K4500 | 24 | 24 | 5.8 | 2.3 | 17 | 2.0 | 26 | 25 | 8.7 |
| JAN 23... | 15 | K5 | 28 | 28 | 6.9 | 2.6 | 29 | 2.3 | 32 | 36 | 11 |
| MAR 14... | -- | -- | 25 | 25 | 6.0 | 2.3 | 22 | 1.8 | 31 | 33 | 9.9 |
| APR 25... | 98 | 35 | 29 | 29 | 7.1 | 2.6 | 27 | 2.1 | 34 | 33 | 12 |
| JUN 11... | K2300 | 200 | 23 | 23 | 5.9 | 2.1 | 17 | 2.3 | 26 | 26 | 11 |
| AUG 06... | 300 | 120 | 23 | 23 | 5.6 | 2.2 | 14 | 2.7 | 24 | 23 | 11 |

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 06... | 21 | 0.1 | 15 | 89 | 88 | 0.32 | 0.02 | 0.2 | 0.37 | 0.09 | 0.10 |
| JAN 23... | 33 | 0.1 | 18 | 142 | 130 | 0.65 | 0.18 | 0.6 | 0.18 | 0.15 | 0.15 |
| MAR 14... | 23 | 0.1 | 15 | 107 | 100 | 0.16 | 0.02 | 0.4 | -- | -- | -- |
| APR 25... | 29 | 0.2 | 15 | 127 | 120 | <0.10 | 0.04 | 1.1 | 0.07 | <0.01 | <0.01 |
| JUN 11... | 17 | 0.1 | 15 | 103 | 87 | 0.97 | 0.13 | 0.7 | 0.21 | 0.11 | 0.14 |
| AUG 06... | 15 | 0.1 | 14 | 85 | 79 | 0.50 | 0.05 | 0.5 | 0.14 | 0.11 | 0.10 |

## 02075500 DAN RIVER AT PACES, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | ALUM-INUM, DIS-SOLVED (UG/L AS AL) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | BERYL-LIUM, DIS-SOLVED (UG/L AS BE) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, DIS-SOLVED (UG/L AS PB) | LITHIUM DIS-SOLVED (UG/L AS LI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 06... | 60 | 1 | 21 | <0.5 | <1 | 1 | <3 | <1 | 220 | <1 | <4 |
| JAN 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 14... | -- | 1 | 29 | <0.5 | <1 | <1 | <3 | 5 | 170 | <1 | <4 |
| APR 25... | 20 | 2 | 23 | <0.5 | <1 | <1 | <3 | 1 | 130 | 2 | <4 |
| JUN 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 06... | 50 | <1 | 23 | 1 | <1 | 3 | <3 | 10 | 160 | 1 | <4 |

| DATE | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY DIS-SOLVED (UG/L AS HG) | MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, DIS-SOLVED (UG/L AS AG) | STRON-TIUM, DIS-SOLVED (UG/L AS SR) | VANA-DIUM, DIS-SOLVED (UG/L AS V) | ZINC, DIS-SOLVED (UG/L AS ZN) | SEDI-MENT, SUS-PENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 06... | 14 | 0.6 | <10 | 1 | <1 | <1 | 50 | <6 | 6 | 101 | 67 |
| JAN 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 9 | 89 |
| MAR 14... | 7 | 0.2 | <10 | <1 | -- | -- | 50 | <6 | 13 | 14 | 64 |
| APR 25... | 10 | 0.3 | <10 | 1 | <1 | <1 | 60 | <6 | 9 | 27 | 71 |
| JUN 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 126 | 97 |
| AUG 06... | 7 | <0.1 | <10 | 2 | <1 | <1 | 46 | <6 | 5 | 48 | 98 |

## 02076500 GEORGES CREEK NEAR GRETNA, VA

**LOCATION.**--Lat 36°56'11", long 79°18'42", Pittsylvania County, Hydrologic Unit 03010105, on left bank 15 ft downstream from bridge on State Highway 40, 2.8 mi southeast of Gretna, and 5.8 mi upstream from Whitethorn Creek.

**DRAINAGE AREA.**--9.24 mi$^2$.

**PERIOD OF RECORD.**--September 1949 to current year.

**REVISED RECORDS.**--WSP 1703: 1950-52. WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 629.54 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Oct. 1-11, Jan. 16, 17, 22-30, Aug. 1-6, 27, and Sept. 4. Records good except those for periods of doubtful or no gage-height record, Oct. 1-11, Aug. 1-6, 27, and Sept. 4, and periods with ice effect, Jan. 16, 17, 22-30, which are fair. Occasional regulation at low flow from unknown source. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**COOPERATION.**--Records were provided by the Virginia Water Control Board.

**AVERAGE DISCHARGE.**--36 years, 9.62 ft$^3$/s, 14.14 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 1,480 ft$^3$/s, Sept. 22, 1979, gage height, 8.50 ft, from rating curve extended above 640 ft$^3$/s on basis of slope-area measurements at gage heights 4.93 ft and 6.22 ft and contracted-opening measurements at gage heights 7.75 ft and 8.50 ft; minimum daily, 1.0 ft$^3$/s, Mar. 12, Apr. 5, 1956, July 28, 1966.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 150 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 0630 | *905 | *6.55 | Aug. 26 | 2200 | 256 | 3.44 |

Minimum daily discharge, 2.6 ft$^3$/s, June 27-29.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 8.5 | 7.3 | 8.9 | 28 | 8.2 | 7.6 | 5.4 | 4.9 | 5.7 | 8.4 | 12 |
| 2 | 10 | 8.7 | 6.7 | 8.4 | 34 | 8.0 | 7.1 | 5.7 | 4.5 | 5.6 | 10 | 11 |
| 3 | 7.0 | 8.3 | 6.8 | 55 | 18 | 7.9 | 7.2 | 6.3 | 4.5 | 5.7 | 8.5 | 9.5 |
| 4 | 6.4 | 8.2 | 6.7 | 42 | 14 | 7.9 | 7.1 | 5.9 | 4.1 | 4.4 | 7.0 | 8.2 |
| 5 | 6.0 | 9.5 | 8.7 | 21 | 13 | 8.0 | 7.4 | 5.7 | 4.1 | 3.8 | 6.2 | 7.4 |
| 6 | 5.9 | 9.1 | 12 | 15 | 12 | 7.7 | 7.0 | 5.5 | 4.5 | 3.6 | 5.4 | 6.2 |
| 7 | 5.8 | 8.8 | 9.5 | 12 | 11 | 7.4 | 6.8 | 5.1 | 4.4 | 3.8 | 9.1 | 6.0 |
| 8 | 5.8 | 8.8 | 8.8 | 11 | 10 | 8.1 | 7.0 | 5.0 | 4.8 | 3.2 | 12 | 5.9 |
| 9 | 5.9 | 8.7 | 8.8 | 10 | 9.8 | 9.0 | 6.9 | 4.8 | 4.5 | 3.0 | 8.5 | 5.9 |
| 10 | 5.9 | 8.6 | 8.5 | 9.9 | 9.3 | 8.0 | 6.5 | 4.9 | 4.2 | 3.6 | 6.8 | 5.9 |
| 11 | 6.0 | 9.0 | 8.5 | 9.7 | 9.5 | 7.8 | 6.4 | 4.8 | 4.1 | 4.9 | 6.3 | 5.5 |
| 12 | 6.5 | 8.3 | 8.4 | 9.1 | 28 | 8.0 | 6.7 | 4.8 | 3.9 | 3.5 | 5.7 | 5.4 |
| 13 | 7.0 | 8.0 | 7.9 | 8.2 | 16 | 7.6 | 6.9 | 6.2 | 3.7 | 7.1 | 5.4 | 5.4 |
| 14 | 7.0 | 8.0 | 7.9 | 8.3 | 13 | 7.4 | 6.9 | 5.1 | 3.4 | 6.6 | 5.2 | 5.1 |
| 15 | 7.1 | 8.4 | 7.7 | 8.5 | 11 | 7.4 | 6.9 | 5.3 | 3.4 | 4.2 | 5.1 | 4.9 |
| 16 | 7.2 | 9.0 | 7.5 | 6.5 | 11 | 7.1 | 7.7 | 7.5 | 3.9 | 4.2 | 7.0 | 5.0 |
| 17 | 7.4 | 9.0 | 7.6 | 7.9 | 9.7 | 7.1 | 7.2 | 5.9 | 4.2 | 3.6 | 10 | 5.0 |
| 18 | 8.3 | 8.4 | 7.7 | 9.3 | 9.6 | 7.1 | 6.9 | 5.1 | 3.6 | 3.3 | 461 | 5.0 |
| 19 | 8.4 | 13 | 7.6 | 9.1 | 9.6 | 6.9 | 6.8 | 5.0 | 3.2 | 3.0 | 33 | 4.9 |
| 20 | 8.1 | 10 | 7.6 | 8.6 | 9.2 | 7.0 | 6.6 | 4.9 | 3.0 | 2.9 | 22 | 4.8 |
| 21 | 8.1 | 9.2 | 9.4 | 8.3 | 9.0 | 7.1 | 6.4 | 5.1 | 3.0 | 3.4 | 19 | 4.8 |
| 22 | 8.3 | 9.0 | 9.5 | 8.0 | 8.9 | 9.3 | 6.2 | 5.2 | 3.0 | 14 | 12 | 5.1 |
| 23 | 8.9 | 8.9 | 8.5 | 7.7 | 8.8 | 14 | 5.9 | 18 | 2.9 | 17 | 9.6 | 5.3 |
| 24 | 30 | 9.1 | 7.7 | 7.3 | 8.9 | 9.7 | 6.1 | 10 | 2.9 | 5.8 | 12 | 5.0 |
| 25 | 11 | 8.9 | 7.6 | 7.2 | 8.7 | 8.8 | 7.8 | 8.0 | 3.0 | 18 | 14 | 4.6 |
| 26 | 9.9 | 8.9 | 7.7 | 7.2 | 12 | 8.1 | 6.2 | 6.5 | 2.7 | 16 | 30 | 4.7 |
| 27 | 9.3 | 8.9 | 7.9 | 7.3 | 8.9 | 7.8 | 6.0 | 5.9 | 2.6 | 34 | 50 | 4.5 |
| 28 | 9.1 | 17 | 7.6 | 7.5 | 8.2 | 7.6 | 5.9 | 5.3 | 2.6 | 16 | 15 | 4.4 |
| 29 | 9.7 | 10 | 7.5 | 7.9 | --- | 7.5 | 5.7 | 5.2 | 2.6 | 22 | 13 | 4.3 |
| 30 | 9.1 | 8.0 | 7.5 | 8.3 | --- | 7.5 | 5.6 | 5.2 | 2.8 | 11 | 25 | 4.6 |
| 31 | 8.8 | --- | 9.1 | 11 | --- | 7.6 | --- | 5.3 | --- | 8.2 | 16 | --- |
| TOTAL | 268.9 | 276.2 | 252.2 | 366.1 | 359.1 | 248.6 | 201.4 | 188.6 | 109.0 | 251.1 | 858.2 | 176.3 |
| MEAN | 8.67 | 9.21 | 8.14 | 11.8 | 12.8 | 8.02 | 6.71 | 6.08 | 3.63 | 8.10 | 27.7 | 5.88 |
| MAX | 30 | 17 | 12 | 55 | 34 | 14 | 7.8 | 18 | 4.9 | 34 | 461 | 12 |
| MIN | 5.8 | 8.0 | 6.7 | 6.5 | 8.2 | 6.9 | 5.6 | 4.8 | 2.6 | 2.9 | 5.1 | 4.3 |
| CFSM | .94 | 1.00 | .88 | 1.28 | 1.39 | .87 | .73 | .66 | .39 | .88 | 3.00 | .64 |
| IN. | 1.08 | 1.11 | 1.02 | 1.47 | 1.45 | 1.00 | .81 | .76 | .44 | 1.01 | 3.46 | .71 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 4582.0 | MEAN | 12.5 | MAX | 227 | MIN | 4.3 | CFSM 1.35 | IN. | 18.45 |
| WTR YR 1985 | TOTAL | 3555.7 | MEAN | 9.74 | MAX | 461 | MIN | 2.6 | CFSM 1.05 | IN. | 14.32 |

## 02077000 BANISTER RIVER AT HALIFAX, VA

**LOCATION.**--Lat 36°46'35", long 78°54'58", Halifax County, Hydrologic Unit 03010105, on left bank 10 ft downstream from bridge on U.S. Highway 360, 1,700 ft downstream from Terrible Creek, 1 mi northeast of Halifax, and 10 mi upstream from mouth.

**DRAINAGE AREA.**--547 mi².

**PERIOD OF RECORD.**--September 1904 to December 1905, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

**REVISED RECORDS.**--WSP 892: 1929-30, 1932-35. WSP 972: 1938(M), 1940. WSP 1112: 1943(M). WSP 2104: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 318.54 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Sept. 28, 1904, to Dec. 31, 1905, nonrecording gage at site 400 ft upstream at different datum. Dec. 9, 1928, to Sept. 20, 1950, water-stage recorder at site 400 ft upstream at present datum.

**REMARKS.**--Estimated daily discharges: Dec. 6, 7. Records good. Low and medium flow regulated at times during year by a lake 0.5 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--58 years, 508 ft³/s, 12.61 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 50,000 ft³/s, Sept. 20, 1944, gage height, 40.8 ft, from floodmarks, from rating curve extended above 13,000 ft³/s on basis of slope-area measurement of peak flow and velocity-area study; minimum, 6.0 ft³/s many days in August and September 1932.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 7,140 ft³/s, Aug. 19, gage height, 19.50 ft; minimum daily, 87 ft³/s, June 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 344 | 309 | 406 | 271 | 1010 | 446 | 300 | 191 | 176 | 88 | 265 | 204 |
| 2 | 377 | 280 | 323 | 282 | 2570 | 422 | 290 | 186 | 166 | 96 | 266 | 211 |
| 3 | 275 | 257 | 335 | 859 | 2660 | 400 | 281 | 216 | 158 | 102 | 238 | 249 |
| 4 | 213 | 247 | 331 | 3560 | 1560 | 385 | 277 | 224 | 152 | 113 | 206 | 230 |
| 5 | 193 | 263 | 327 | 4040 | 882 | 372 | 273 | 203 | 152 | 133 | 172 | 214 |
| 6 | 184 | 292 | 585 | 2450 | 741 | 362 | 275 | 188 | 158 | 141 | 155 | 199 |
| 7 | 181 | 286 | 650 | 1080 | 731 | 222 | 267 | 179 | 165 | 139 | 162 | 188 |
| 8 | 182 | 256 | 484 | 740 | 633 | 311 | 262 | 170 | 163 | 126 | 227 | 179 |
| 9 | 181 | 242 | 383 | 595 | 510 | 350 | 256 | 165 | 160 | 116 | 258 | 172 |
| 10 | 179 | 239 | 345 | 515 | 472 | 361 | 248 | 163 | 171 | 110 | 258 | 166 |
| 11 | 176 | 258 | 328 | 466 | 459 | 341 | 252 | 162 | 699 | 112 | 209 | 161 |
| 12 | 173 | 260 | 314 | 433 | 906 | 343 | 254 | 162 | 284 | 112 | 173 | 157 |
| 13 | 171 | 248 | 301 | 400 | 2040 | 329 | 254 | 195 | 174 | 120 | 152 | 153 |
| 14 | 171 | 231 | 290 | 385 | 1250 | 321 | 257 | 184 | 146 | 164 | 140 | 144 |
| 15 | 169 | 227 | 281 | 370 | 774 | 313 | 262 | 159 | 132 | 201 | 129 | 138 |
| 16 | 170 | 224 | 275 | 253 | 612 | 303 | 267 | 239 | 134 | 178 | 122 | 137 |
| 17 | 171 | 210 | 276 | 309 | 537 | 305 | 272 | 317 | 159 | 145 | 133 | 136 |
| 18 | 181 | 209 | 276 | 366 | 496 | 298 | 261 | 280 | 198 | 138 | 1360 | 136 |
| 19 | 191 | 247 | 278 | 375 | 469 | 290 | 251 | 207 | 153 | 120 | 5770 | 134 |
| 20 | 191 | 296 | 278 | 361 | 448 | 286 | 239 | 175 | 130 | 110 | 5970 | 132 |
| 21 | 187 | 284 | 284 | 228 | 424 | 284 | 231 | 169 | 126 | 103 | 4460 | 131 |
| 22 | 194 | 248 | 312 | 213 | 401 | 305 | 222 | 224 | 123 | 103 | 2270 | 133 |
| 23 | 223 | 232 | 318 | 310 | 393 | 382 | 214 | 322 | 120 | 220 | 879 | 140 |
| 24 | 494 | 229 | 291 | 325 | 390 | 486 | 209 | 994 | 119 | 259 | 563 | 146 |
| 25 | 767 | 229 | 278 | 333 | 389 | 424 | 209 | 655 | 127 | 176 | 523 | 139 |
| 26 | 462 | 228 | 265 | 311 | 448 | 373 | 210 | 384 | 126 | 259 | 878 | 132 |
| 27 | 316 | 225 | 257 | 289 | 587 | 340 | 203 | 276 | 123 | 383 | 1220 | 127 |
| 28 | 276 | 269 | 256 | 313 | 509 | 327 | 205 | 227 | 117 | 496 | 945 | 118 |
| 29 | 378 | 560 | 257 | 330 | --- | 321 | 213 | 198 | 99 | 502 | 556 | 114 |
| 30 | 497 | 623 | 257 | 318 | --- | 314 | 198 | 186 | 87 | 526 | 425 | 112 |
| 31 | 384 | --- | 262 | 379 | --- | 307 | --- | 179 | --- | 340 | 373 | --- |
| TOTAL | 8251 | 8208 | 10103 | 21459 | 23301 | 10623 | 7412 | 7779 | 4997 | 5931 | 29457 | 4732 |
| MEAN | 266 | 274 | 326 | 692 | 832 | 343 | 247 | 251 | 167 | 191 | 950 | 158 |
| MAX | 767 | 623 | 650 | 4040 | 2660 | 486 | 300 | 994 | 699 | 526 | 5970 | 249 |
| MIN | 169 | 209 | 256 | 213 | 389 | 222 | 198 | 159 | 87 | 88 | 122 | 112 |
| CFSM | .49 | .50 | .60 | 1.27 | 1.52 | .63 | .45 | .46 | .31 | .35 | 1.74 | .29 |
| IN. | .56 | .56 | .69 | 1.46 | 1.58 | .72 | .50 | .53 | .34 | .40 | 2.00 | .32 |

CAL YR 1984 TOTAL 239374 MEAN 654 MAX 8410 MIN 133 CFSM 1.20 IN. 16.28
WTR YR 1985 TOTAL 142253 MEAN 390 MAX 5970 MIN 87 CFSM .71 IN. 9.67

## 02077500 HYCO RIVER NEAR DENNISTON, VA

LOCATION.--Lat 36°35'16", long 78°53'56", Halifax County, Hydrologic Unit 03010104, on left bank 60 ft upstream from bridge on U.S. Highway 501, 0.8 mi upstream from Mayo Creek, 2.5 mi northeast of Denniston, and 7.3 mi south of South Boston.

DRAINAGE AREA.--289 mi².

PERIOD OF RECORD.--October 1928 to September 1934, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1383: Drainage area, 1930. WSP 1503: 1930(M). WDR VA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 315.24 ft above National Geodetic Vertical Datum of 1929. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 12 to Jan. 21. Records good except those for period of no gage-height record, Dec. 12 to Jan. 21, which are fair. Small diurnal fluctuation at low flow in some years caused by mill upstream from station. Since 1964, flow regulated by Hyco Lake 15.7 mi upstream, capacity 75,480 acre-ft, and since Apr. 26, 1974, by Roxboro Steam-Electric Generating Plant afterbay Reservoir, capacity 12,000 acre-ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years, 254 ft³/s, 11.94 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s, July 15, 1975, gage height, 24.27 ft, from rating curve extended above 8,200 ft³/s; minimum, 0.004 ft³/s, Sept. 14, 1932, gage height, 3.58 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1928 and September 1945 reached stages of 26.4 ft and 25.6 ft, respectively, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,420 ft³/s, Jan. 6, gage height, 15.54 ft; minimum, 12 ft³/s, Sept. 30; minimum gage height, 4.41 ft, Aug. 13.

CORRECTIONS.--The maximum discharge for water year 1984 is 4,360 ft³/s, July 30, 1984, gage height, 18.09 ft; the previously published figure was not the maximum.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100 | 48 | 38 | 25 | 825 | 253 | 53 | 27 | 28 | 23 | 31 | 451 |
| 2 | 88 | 34 | 32 | 70 | 1730 | 233 | 53 | 27 | 24 | 29 | 31 | 620 |
| 3 | 54 | 27 | 61 | 300 | 2170 | 217 | 53 | 39 | 22 | 21 | 28 | 558 |
| 4 | 46 | 25 | 79 | 1500 | 2270 | 209 | 52 | 46 | 23 | 17 | 23 | 295 |
| 5 | 45 | 25 | 56 | 2100 | 1540 | 205 | 52 | 31 | 25 | 17 | 19 | 221 |
| 6 | 43 | 28 | 295 | 2300 | 745 | 193 | 49 | 26 | 82 | 21 | 18 | 172 |
| 7 | 43 | 27 | 128 | 800 | 637 | 189 | 47 | 27 | 55 | 24 | 20 | 157 |
| 8 | 41 | 25 | 68 | 250 | 582 | 187 | 46 | 27 | 41 | 23 | 20 | 153 |
| 9 | 43 | 25 | 53 | 40 | 527 | 185 | 45 | 25 | 33 | 24 | 27 | 150 |
| 10 | 43 | 25 | 45 | 43 | 444 | 181 | 47 | 26 | 26 | 26 | 23 | 132 |
| 11 | 45 | 26 | 44 | 70 | 271 | 178 | 48 | 27 | 25 | 29 | 19 | 60 |
| 12 | 43 | 36 | 46 | 90 | 704 | 155 | 48 | 25 | 26 | 28 | 16 | 33 |
| 13 | 42 | 28 | 42 | 100 | 955 | 151 | 45 | 25 | 27 | 25 | 18 | 31 |
| 14 | 41 | 27 | 38 | 110 | 776 | 148 | 43 | 26 | 25 | 25 | 20 | 18 |
| 15 | 39 | 27 | 36 | 150 | 535 | 61 | 43 | 25 | 24 | 26 | 16 | 16 |
| 16 | 40 | 27 | 34 | 170 | 273 | 45 | 45 | 39 | 22 | 25 | 15 | 14 |
| 17 | 42 | 27 | 33 | 192 | 286 | 43 | 44 | 56 | 27 | 26 | 16 | 15 |
| 18 | 43 | 25 | 36 | 210 | 274 | 41 | 42 | 42 | 30 | 26 | 62 | 15 |
| 19 | 44 | 28 | 34 | 130 | 255 | 43 | 40 | 29 | 24 | 25 | 536 | 15 |
| 20 | 44 | 48 | 32 | 86 | 234 | 43 | 39 | 25 | 21 | 23 | 1210 | 15 |
| 21 | 43 | 34 | 30 | 80 | 218 | 43 | 36 | 25 | 20 | 22 | 1080 | 16 |
| 22 | 42 | 29 | 39 | 90 | 212 | 45 | 32 | 30 | 20 | 19 | 850 | 15 |
| 23 | 49 | 27 | 34 | 80 | 208 | 71 | 33 | 35 | 18 | 21 | 538 | 14 |
| 24 | 49 | 26 | 32 | 80 | 204 | 83 | 33 | 45 | 17 | 22 | 402 | 15 |
| 25 | 43 | 25 | 30 | 80 | 201 | 112 | 33 | 56 | 18 | 27 | 187 | 16 |
| 26 | 48 | 25 | 34 | 74 | 384 | 204 | 30 | 52 | 19 | 48 | 200 | 15 |
| 27 | 47 | 26 | 30 | 69 | 511 | 182 | 28 | 40 | 18 | 36 | 215 | 16 |
| 28 | 44 | 31 | 28 | 73 | 644 | 173 | 27 | 31 | 18 | 61 | 203 | 15 |
| 29 | 47 | 81 | 27 | 81 | --- | 153 | 26 | 29 | 19 | 68 | 195 | 14 |
| 30 | 56 | 53 | 26 | 113 | --- | 60 | 27 | 28 | 25 | 47 | 213 | 22 |
| 31 | 54 | --- | 25 | 149 | --- | 55 | --- | 28 | --- | 35 | 217 | --- |
| TOTAL | 1491 | 945 | 1565 | 9705 | 18615 | 4141 | 1239 | 1019 | 802 | 889 | 6468 | 3299 |
| MEAN | 48.1 | 31.5 | 50.5 | 313 | 665 | 134 | 41.3 | 32.9 | 26.7 | 28.7 | 209 | 110 |
| MAX | 100 | 81 | 295 | 2300 | 2270 | 253 | 53 | 56 | 82 | 68 | 1210 | 620 |
| MIN | 39 | 25 | 25 | 25 | 201 | 41 | 26 | 25 | 17 | 17 | 15 | 14 |
| CFSM | .17 | .11 | .17 | 1.08 | 2.30 | .46 | .14 | .11 | .09 | .10 | .72 | .38 |
| IN. | .19 | .12 | .20 | 1.25 | 2.40 | .53 | .16 | .13 | .10 | .11 | .83 | .42 |

CAL YR 1984 TOTAL 148626 MEAN 406 MAX 4020 MIN 25 CFSM 1.40 IN. 19.13
WTR YR 1985 TOTAL 50178 MEAN 137 MAX 2300 MIN 14 CFSM .47 IN. 6.46

## 02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA

**LOCATION.**--Lat 36°35'56", long 78°18'06", Mecklenburg County, Hydrologic Unit 03010102, at John H. Kerr Dam on Roanoke River, 2.7 mi upstream from Allen Creek, 6.7 mi southeast of Boydton, 18 mi upstream from the Virginia-North Carolina State line, and at mile 178.7.

**DRAINAGE AREA.**--7,780 $mi^2$, approximately.

**PERIOD OF RECORD.**--July 1950 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

**REMARKS.**--Reservoir is formed by concrete dam with earth embankments. Spillway, with crest at elevation 288.0 ft, is equipped with 22 radial gates 32 ft high by 42 ft wide. Storage began in September 1950 during construction; initial filling started June 30, 1952; water in reservoir first reached rule-curve elevation in March 1953. Total capacity at top of gates, elevation, 320 ft, is 2,770,000 acre-ft of which 1,281,400 acre-ft is controlled flood storage between elevations 300 ft, top of power pool, and 320 ft; 316,900 acre-ft is available for power between elevations 293.0 ft, bottom of power pool, and 300 ft; 1,171,700 acre-ft is inactive and dead storage below elevation 293.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for navigation and pollution abatement, release of water for downstream fish spawning, and recreation.

**COOPERATION.**--Records were provided by the U.S. Army Corps of Engineers.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum contents, 2,656,300 acre-ft, Apr. 3, 1975, elevation, 318.85 ft; minimum (after first filling to rule curve), 724,700 acre-ft, Feb. 3, 1956, elevation, 280.23 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum contents, 1,722,700 acre-ft, Aug. 23, elevation, 304.46 ft; minimum, 1,261,180 acre-ft, Dec. 31, elevation, 295.12 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 296.89 | 1,340,130 | - |
| Oct. 31 | 297.80 | 1,382,380 | +42,250 |
| Nov. 30 | 295.87 | 1,294,180 | -88,200 |
| Dec. 31 | 295.20 | 1,264,700 | -29,480 |
| CAL YR 1984 | - | - | -175,780 |
| Jan. 31 | 295.77 | 1,289,780 | +25,080 |
| Feb. 28 | 298.17 | 1,399,830 | +110,050 |
| Mar. 31 | 298.27 | 1,404,610 | +4,780 |
| Apr. 30 | 299.61 | 1,469,450 | +64,840 |
| May 31 | 300.30 | 1,503,750 | +34,300 |
| June 30 | 298.92 | 1,435,680 | -68,070 |
| July 31 | 298.48 | 1,414,640 | -21,040 |
| Aug. 31 | 301.79 | 1,579,860 | +165,220 |
| Sept. 30 | 298.09 | 1,396,000 | -183,860 |
| WTR YR 1985 | - | - | +55,870 |

## 02079640 ALLEN CREEK NEAR BOYDTON, VA

LOCATION.--Lat 36°40'46", long 78°19'37", Mecklenburg County, Hydrologic Unit 03010106, on left bank at upstream side of bridge on U.S. Highway 58, 0.8 mi upstream from Coleman Creek, 2.3 mi downstream from Layton Creek, 3.7 mi east of Boydton, and 11.8 mi southwest of South Hill.

DRAINAGE AREA.--53.4 mi$^2$.

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 216.50 ft above National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Estimated daily discharges: Jan. 21-30 and Feb. 6, 7. Records good except those for periods with ice effect, Jan. 21-30 and Feb. 6, 7, which are fair. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Water Control Board.

AVERAGE DISCHARGE.--24 years, 44.4 ft$^3$/s, 11.29 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,620 ft$^3$/s, Oct. 23, 1971, gage height, 21.80 ft, from rating curve extended above 3,100 ft$^3$/s; no flow many days in August, September, and October 1968, September and October 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Jan. 4 | 0200 | *2,280 | *16.99 | Feb. 12 | 1230 | 872 | 11.73 |
| Feb. 2 | 0900 | 1,080 | 13.03 | | | | |

Minimum discharge, 1.5 ft$^3$/s, July 22, Sept. 20, 21-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22 | 8.1 | 16 | 12 | 430 | 38 | 20 | 11 | 8.9 | 3.5 | 4.5 | 3.9 |
| 2 | 13 | 7.7 | 13 | 13 | 718 | 35 | 19 | 11 | 7.9 | 4.9 | 5.0 | 3.8 |
| 3 | 7.0 | 7.1 | 99 | 874 | 177 | 31 | 18 | 29 | 6.9 | 4.4 | 4.9 | 3.7 |
| 4 | 5.5 | 6.8 | 44 | 1170 | 82 | 29 | 18 | 20 | 6.9 | 3.6 | 4.1 | 3.6 |
| 5 | 4.9 | 11 | 37 | 230 | 61 | 29 | 18 | 13 | 8.6 | 3.4 | 3.7 | 3.5 |
| 6 | 4.5 | 11 | 259 | 89 | 59 | 26 | 17 | 12 | 23 | 3.2 | 3.4 | 3.3 |
| 7 | 4.4 | 8.3 | 60 | 60 | 52 | 24 | 16 | 11 | 13 | 3.3 | 3.4 | 3.2 |
| 8 | 4.5 | 7.3 | 34 | 46 | 47 | 24 | 17 | 9.8 | 9.2 | 3.2 | 3.3 | 3.1 |
| 9 | 4.7 | 7.0 | 26 | 37 | 40 | 25 | 16 | 9.2 | 7.9 | 2.7 | 3.4 | 3.0 |
| 10 | 4.6 | 7.1 | 22 | 32 | 36 | 23 | 16 | 9.1 | 6.7 | 2.5 | 3.5 | 2.9 |
| 11 | 4.5 | 8.7 | 20 | 31 | 35 | 23 | 16 | 9.1 | 5.6 | 2.7 | 3.4 | 2.7 |
| 12 | 4.5 | 12 | 18 | 31 | 396 | 23 | 17 | 8.9 | 5.9 | 3.0 | 3.2 | 2.5 |
| 13 | 4.5 | 9.2 | 17 | 28 | 150 | 22 | 17 | 8.8 | 18 | 2.9 | 3.1 | 2.3 |
| 14 | 4.6 | 7.9 | 16 | 27 | 73 | 21 | 19 | 8.8 | 11 | 2.7 | 3.2 | 2.1 |
| 15 | 4.7 | 7.3 | 15 | 25 | 55 | 21 | 20 | 8.1 | 6.2 | 2.6 | 2.9 | 1.9 |
| 16 | 4.8 | 7.4 | 15 | 23 | 45 | 20 | 19 | 7.5 | 8.5 | 2.5 | 2.6 | 1.8 |
| 17 | 4.8 | 7.2 | 15 | 25 | 41 | 20 | 21 | 11 | 12 | 2.2 | 2.5 | 1.7 |
| 18 | 4.8 | 7.0 | 15 | 29 | 37 | 20 | 18 | 14 | 7.5 | 1.9 | 23 | 1.7 |
| 19 | 4.9 | 13 | 15 | 30 | 34 | 18 | 17 | 11 | 5.3 | 1.9 | 38 | 1.7 |
| 20 | 5.2 | 23 | 15 | 27 | 32 | 19 | 16 | 7.9 | 4.2 | 1.7 | 9.1 | 1.6 |
| 21 | 5.3 | 13 | 14 | 25 | 30 | 19 | 15 | 7.2 | 3.4 | 1.6 | 13 | 1.6 |
| 22 | 6.7 | 10 | 14 | 22 | 29 | 20 | 14 | 7.1 | 3.0 | 1.6 | 15 | 1.8 |
| 23 | 13 | 9.2 | 14 | 21 | 28 | 36 | 13 | 34 | 2.8 | 1.7 | 7.8 | 2.7 |
| 24 | 45 | 9.0 | 12 | 20 | 28 | 34 | 13 | 259 | 2.6 | 2.0 | 5.5 | 3.6 |
| 25 | 18 | 8.9 | 13 | 19 | 28 | 37 | 13 | 67 | 2.5 | 4.1 | 5.0 | 3.7 |
| 26 | 10 | 8.6 | 12 | 19 | 120 | 27 | 12 | 23 | 2.3 | 13 | 5.1 | 3.7 |
| 27 | 8.0 | 8.4 | 12 | 20 | 74 | 24 | 12 | 16 | 2.3 | 8.5 | 6.0 | 9.0 |
| 28 | 7.2 | 11 | 12 | 20 | 45 | 23 | 12 | 13 | 2.3 | 16 | 5.1 | 8.4 |
| 29 | 13 | 68 | 12 | 21 | --- | 23 | 12 | 11 | 2.4 | 8.0 | 4.5 | 5.0 |
| 30 | 14 | 24 | 12 | 22 | --- | 22 | 11 | 10 | 3.2 | 6.1 | 4.3 | 4.0 |
| 31 | 9.3 | --- | 12 | 80 | --- | 20 | --- | 9.6 | --- | 4.6 | 4.2 | --- |
| TOTAL | 271.9 | 354.2 | 910 | 3128 | 2982 | 776 | 482 | 687.1 | 210.0 | 126.0 | 205.7 | 97.5 |
| MEAN | 8.77 | 11.8 | 29.4 | 101 | 107 | 25.0 | 16.1 | 22.2 | 7.00 | 4.06 | 6.64 | 3.25 |
| MAX | 45 | 68 | 259 | 1170 | 718 | 38 | 21 | 259 | 23 | 16 | 38 | 9.0 |
| MIN | 4.4 | 6.8 | 12 | 12 | 28 | 18 | 11 | 7.1 | 2.3 | 1.6 | 2.5 | 1.6 |
| CFSM | .16 | .22 | .55 | 1.89 | 2.00 | .47 | .30 | .42 | .13 | .08 | .12 | .06 |
| IN. | .19 | .25 | .63 | 2.18 | 2.08 | .54 | .34 | .48 | .15 | .09 | .14 | .07 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 20672.0 | MEAN | 56.5 | MAX | 1600 | MIN | 3.3 | CFSM | 1.06 | IN. 14.40 |
| WTR YR 1985 | TOTAL | 10230.4 | MEAN | 28.0 | MAX | 1170 | MIN | 1.6 | CFSM | .52 | IN. 7.13 |

## 03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC

**LOCATION.**--Lat 36°23'35", long 81°24'26", Ashe County, Hydrologic Unit 05050001, on right bank 600 ft upstream from bridge on State Highways 16 and 88, 0.2 mi downstream from Bear Creek, and 4 mi southeast of Jefferson.

**DRAINAGE AREA.**--205 mi$^2$.

**PERIOD OF RECORD.**--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1305.

**REVISED RECORDS.**--WSP 1275: 1925-26(M), 1928-30(M), 1931-32, 1933-35(M), 1941-42(m), 1944(m). WDR NC-81-1: Drainage area.

**GAGE.**--Water-stage recorder. Datum of gage is 2,657.04 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 14, 1934, nonrecording gage on bridge 400 ft downstream at same datum. Oct. 14, 1934, to Mar. 25, 1935, nonrecording gage at present site and datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite telemeter at station. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--61 years, 430 ft$^3$/s, 28.48 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 52,800 ft$^3$/s, Aug. 14, 1940, gage height, 22.50 ft, from rating curve extended above 5,100 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 52 ft$^3$/s, Dec. 24, 1943, result of freezeup; minimum daily, 65 ft$^3$/s, Sept. 9, 1925.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of July 15, 1916, reached a stage of 18.0 ft, from floodmarks witnessed by local resident, discharge, 35,200 ft$^3$/s.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 2,600 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 0230 | *3,190 | *5.83 | | | | |

No other peak equal to or greater than base discharge.

Minimum discharge, 109 ft$^3$/s, Jan. 21, result of freezeup; minimum daily, 132 ft$^3$/s, July 23.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 313 | 205 | 374 | 220 | e750 | 442 | 368 | 286 | 226 | 210 | 252 | 283 |
| 2 | 272 | 198 | 324 | 231 | e900 | 412 | 322 | 289 | 219 | 225 | 272 | 254 |
| 3 | 210 | 191 | 311 | 357 | e780 | 380 | 291 | 319 | 261 | 211 | 253 | 241 |
| 4 | 196 | 204 | 293 | 614 | e540 | 357 | 281 | 307 | 234 | 190 | 210 | 232 |
| 5 | 190 | 285 | 284 | 563 | e470 | 346 | 277 | 277 | 215 | 185 | 187 | 228 |
| 6 | 187 | 251 | 354 | 403 | e435 | 331 | 454 | 267 | 229 | 185 | 179 | 281 |
| 7 | 189 | 213 | 318 | 346 | e430 | 316 | 421 | 260 | 253 | 179 | 186 | 252 |
| 8 | 201 | 200 | 297 | 316 | e300 | 308 | 339 | 258 | 338 | 176 | 204 | 299 |
| 9 | 204 | 194 | 312 | 297 | e250 | 316 | 329 | 254 | 258 | 160 | 288 | 257 |
| 10 | 198 | 196 | 290 | 275 | e340 | 316 | 326 | 262 | 221 | 153 | 241 | 232 |
| 11 | 192 | 522 | 281 | 275 | e340 | 299 | 312 | 264 | 344 | 161 | 196 | 211 |
| 12 | 187 | 404 | 282 | e230 | e480 | 301 | 302 | 262 | 312 | 180 | 182 | 203 |
| 13 | 183 | 264 | 267 | e220 | e380 | 290 | 294 | 307 | 262 | 155 | 177 | 201 |
| 14 | 180 | 231 | 257 | e230 | e260 | 281 | 291 | 354 | 234 | 228 | 186 | 193 |
| 15 | 178 | 219 | 250 | e220 | e270 | 275 | 430 | 307 | 220 | 197 | 161 | 184 |
| 16 | 179 | 214 | 248 | e220 | e320 | 266 | 749 | 382 | 217 | 180 | 160 | 182 |
| 17 | 180 | 205 | 247 | e240 | e280 | 264 | 595 | 357 | 221 | 170 | 786 | 179 |
| 18 | 180 | 198 | 245 | e250 | e290 | 259 | 471 | 314 | 212 | 153 | 2440 | 179 |
| 19 | 179 | 212 | 242 | e250 | e355 | 252 | 416 | 287 | 207 | 146 | 846 | 174 |
| 20 | 186 | 234 | 241 | e200 | e340 | 251 | 383 | 254 | 201 | 141 | 538 | 171 |
| 21 | 225 | 210 | 244 | e150 | e450 | 250 | 361 | 245 | 195 | 136 | 497 | 169 |
| 22 | 273 | 196 | 247 | e200 | e500 | 328 | 340 | 236 | 191 | 133 | 365 | 167 |
| 23 | 249 | 189 | 248 | e230 | 571 | 611 | 325 | 244 | 190 | 132 | 310 | 169 |
| 24 | 234 | 192 | 233 | e240 | 618 | 446 | 350 | 325 | 187 | 155 | 286 | 174 |
| 25 | 223 | 190 | 232 | e250 | 571 | 392 | 439 | 350 | 183 | 200 | 296 | 181 |
| 26 | 222 | 188 | 233 | e250 | 658 | 342 | 345 | 280 | 179 | 327 | 353 | 171 |
| 27 | 212 | 187 | 226 | e250 | 588 | 320 | 317 | 251 | 169 | 429 | 649 | 167 |
| 28 | 199 | 984 | 224 | e250 | 497 | 309 | 325 | 237 | 166 | 341 | 527 | 176 |
| 29 | 285 | 1150 | 223 | e260 | --- | 303 | 340 | 232 | 168 | 293 | 370 | 163 |
| 30 | 285 | 486 | 221 | e320 | --- | 295 | 305 | 230 | 218 | 269 | 318 | 157 |
| 31 | 220 | --- | 222 | e430 | --- | 293 | --- | 244 | --- | 297 | 302 | --- |
| TOTAL | 6611 | 8812 | 8270 | 8787 | 12963 | 10151 | 11098 | 8741 | 6730 | 6297 | 12217 | 6130 |
| MEAN | 213 | 294 | 267 | 283 | 463 | 327 | 370 | 282 | 224 | 203 | 394 | 204 |
| MAX | 313 | 1150 | 374 | 614 | 900 | 611 | 749 | 382 | 344 | 429 | 2440 | 299 |
| MIN | 178 | 187 | 221 | 150 | 250 | 250 | 277 | 230 | 166 | 132 | 160 | 157 |
| CFSM | 1.04 | 1.43 | 1.30 | 1.38 | 2.26 | 1.60 | 1.80 | 1.38 | 1.09 | .99 | 1.92 | .00 |
| IN. | 1.20 | 1.60 | 1.50 | 1.59 | 2.35 | 1.84 | 2.01 | 1.59 | 1.22 | 1.14 | 2.22 | 1.11 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 151998 | MEAN | 415 | MAX | 3610 | MIN | 175 | CFSM | 2.02 | IN. | 27.50 |
| WTR YR 1985 | TOTAL | 106807 | MEAN | 293 | MAX | 2440 | MIN | 132 | CFSM | 1.43 | IN. | 19.38 |

e Estimated.

## 03164000 NEW RIVER NEAR GALAX, VA

LOCATION.--Lat 36°38'50", long 80°58'45", Grayson County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 94, 500 ft downstream from Meadow Creek, 1.2 mi southwest of Old Town, 3.1 mi southwest of Galax, and 3.6 mi downstream from Elk Creek.

DRAINAGE AREA.--1,131 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 758: Drainage area, 1933(M). WSP 893: 1930(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 2,208.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 15-30 and Feb. 10, 11, 15-18. Records good except those for periods with ice effect, Jan. 15-30 and Feb. 10, 11, 15-18, which are fair. Appalachian Power Company gage-height transmitter at station, recorder at Roanoke. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station.

AVERAGE DISCHARGE.--56 years, 1,902 ft$^3$/s, 22.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft$^3$/s, Aug. 14, 1940, gage height, 25.7 ft, from floodmark, from rating curve extended above 32,000 ft$^3$/s on basis of computation of peak flow over dam at Fries 6 mi downstream and slope-area measurement of peak flow; minimum, 193 ft$^3$/s, Jan. 9, 1956, gage height, 0.52 ft, result of freezeup; minimum daily, 265 ft$^3$/s, Sept. 19, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 9,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 0430 | 10,100 | 4.19 | Aug. 18 | 1000 | *10,500 | 4.31 |
| Feb. 16 | 1530 | Ice jam | *5.65 | | | | |

Minimum discharge, 339 ft$^3$/s, Jan. 21, gage height, 0.69 ft, result of freezeup; minimum daily, 484 ft$^3$/s, July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1440 | 848 | 1640 | 1090 | 3470 | 2370 | 1270 | 1060 | 1250 | 910 | 1200 | 983 |
| 2 | 1320 | 802 | 1320 | 1070 | 6810 | 2100 | 1360 | 1020 | 1210 | 1030 | 1170 | 901 |
| 3 | 967 | 770 | 1180 | 1600 | 5190 | 1890 | 1270 | 1110 | 1210 | 919 | 1220 | 854 |
| 4 | 823 | 814 | 1110 | 3260 | 3200 | 1730 | 1230 | 1160 | 1260 | 840 | 1040 | 798 |
| 5 | 784 | 1020 | 1060 | 3840 | 2320 | 1620 | 1200 | 1060 | 1200 | 887 | 869 | 763 |
| 6 | 745 | 1010 | 1180 | 2780 | 2050 | 1540 | 1400 | 969 | 1120 | 856 | 793 | 756 |
| 7 | 720 | 972 | 1230 | 2130 | 1980 | 1420 | 1630 | 935 | 1210 | 847 | 773 | 885 |
| 8 | 733 | 859 | 1110 | 1770 | 1520 | 1340 | 1440 | 914 | 1340 | 788 | 790 | 857 |
| 9 | 745 | 794 | 1150 | 1500 | 1110 | 1400 | 1310 | 889 | 1360 | 673 | 813 | 795 |
| 10 | 784 | 775 | 1140 | 1340 | 1300 | 1510 | 1270 | 891 | 1190 | 617 | 880 | 861 |
| 11 | 771 | 1190 | 1090 | 1250 | 1700 | 1470 | 1250 | 902 | 1120 | 624 | 857 | 725 |
| 12 | 758 | 1900 | 1120 | 1210 | 4110 | 1440 | 1240 | 1070 | 1230 | 655 | 753 | 674 |
| 13 | 722 | 1320 | 1070 | 964 | 3210 | 1400 | 1200 | 1180 | 1350 | 649 | 694 | 650 |
| 14 | 703 | 972 | 1020 | 1060 | 1980 | 1360 | 1180 | 962 | 1190 | 1000 | 738 | 633 |
| 15 | 697 | 886 | 975 | 1000 | 1700 | 1320 | 1230 | 998 | 1070 | 1030 | 623 | 610 |
| 16 | 694 | 849 | 941 | 900 | 1550 | 1230 | 1910 | 2200 | 1050 | 847 | 619 | 587 |
| 17 | 692 | 818 | 919 | 1050 | 1450 | 1130 | 2550 | 1560 | 1180 | 747 | 1010 | 577 |
| 18 | 694 | 795 | 904 | 1100 | 1500 | 1110 | 1890 | 1380 | 1240 | 657 | 7720 | 559 |
| 19 | 694 | 804 | 898 | 1000 | 1690 | 1080 | 1540 | 1330 | 1050 | 571 | 4520 | 552 |
| 20 | 693 | 881 | 956 | 800 | 1760 | 1060 | 1410 | 1140 | 1020 | 517 | 2460 | 534 |
| 21 | 729 | 893 | 1070 | 580 | 2010 | 1060 | 1330 | 1050 | 949 | 485 | 1860 | 519 |
| 22 | 868 | 819 | 1070 | 780 | 2090 | 1250 | 1250 | 1000 | 919 | 484 | 1540 | 516 |
| 23 | 972 | 763 | 1130 | 750 | 2270 | 1920 | 1200 | 2300 | 886 | 585 | 1280 | 520 |
| 24 | 1180 | 763 | 1060 | 700 | 2550 | 2090 | 1180 | 3030 | 854 | 529 | 1120 | 525 |
| 25 | 995 | 771 | 1020 | 760 | 2870 | 1510 | 1540 | 2870 | 830 | 591 | 1170 | 522 |
| 26 | 938 | 762 | 1160 | 620 | 3580 | 1400 | 1330 | 2450 | 755 | 843 | 1320 | 531 |
| 27 | 826 | 754 | 1080 | 600 | 3470 | 1310 | 1180 | 1930 | 707 | 1420 | 1800 | 550 |
| 28 | 801 | 2020 | 1050 | 660 | 2830 | 1270 | 1160 | 1640 | 675 | 2110 | 1810 | 514 |
| 29 | 884 | 4890 | 1000 | 620 | --- | 1250 | 1230 | 1470 | 695 | 1800 | 1500 | 509 |
| 30 | 1030 | 2530 | 975 | 600 | --- | 1200 | 1160 | 1380 | 920 | 1460 | 1200 | 508 |
| 31 | 992 | --- | 1010 | 1770 | --- | 1150 | --- | 1290 | --- | 1270 | 1050 | --- |
| TOTAL | 26394 | 34044 | 33638 | 39154 | 71270 | 44930 | 41340 | 43140 | 32040 | 27241 | 45192 | 19768 |
| MEAN | 851 | 1135 | 1085 | 1263 | 2545 | 1449 | 1378 | 1392 | 1068 | 879 | 1458 | 659 |
| MAX | 1440 | 4890 | 1640 | 3840 | 6810 | 2370 | 2550 | 3030 | 1360 | 2110 | 7720 | 983 |
| MIN | 692 | 754 | 898 | 580 | 1110 | 1060 | 1160 | 889 | 675 | 484 | 619 | 508 |
| CFSM | .75 | 1.00 | .96 | 1.12 | 2.25 | 1.28 | 1.22 | 1.23 | .94 | .78 | 1.29 | .58 |
| IN. | .87 | 1.12 | 1.11 | 1.29 | 2.34 | 1.48 | 1.36 | 1.42 | 1.05 | .90 | 1.49 | .65 |

CAL YR 1984 TOTAL 737509 MEAN 2015 MAX 17700 MIN 590 CFSM 1.78 IN. 24.26
WTR YR 1985 TOTAL 458151 MEAN 1255 MAX 7720 MIN 484 CFSM 1.11 IN. 15.07

## 03164000 NEW RIVER NEAR GALAX, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to September 1983.
WATER TEMPERATURE: October to December 1949, April 1968 to September 1983.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT 12... | 13:20 | 758 | 45 | 47 | 8.6 | 8.2 | 18.5 | 712 | 2 | 9.8 |
| NOV 20... | 12:50 | 901 | 45 | 46 | 7.6 | 7.4 | 5.5 | 710 | <1 | 12.2 |
| JAN 15... | 10:05 | 1000 | 68 | -- | 7.1 | 7.5 | 0.5 | 719 | <1 | 13.7 |
| FEB 25... | 10:15 | 2910 | 57 | 57 | 7.1 | 7.0 | 9.0 | 707 | 5 | 10.4 |
| APR 11... | 11:00 | 1270 | 50 | 54 | 7.7 | 7.1 | 10.0 | 711 | 10 | 12.8 |
| MAY 17... | 10:55 | 1510 | 50 | 51 | 6.8 | 6.9 | 19.5 | 708 | 30 | 9.1 |
| JUL 10... | 13:30 | 608 | 50 | 51 | 7.9 | 7.8 | 28.0 | 700 | 30 | 8.4 |
| AUG 20... | 11:00 | 2420 | 54 | 51 | 7.2 | 7.2 | 21.5 | 705 | 20 | 7.5 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 12... | 112 | 14 | 14 | 3.5 | 1.3 | 3.3 | 1.2 | 17 | 2.2 |
| NOV 20... | 104 | 15 | 15 | 3.6 | 1.4 | 3.0 | 1.2 | 15 | 2.6 |
| JAN 15... | 101 | 16 | 16 | 4.1 | 1.5 | 6.2 | 2.8 | 15 | 3.7 |
| FEB 25... | 97 | 15 | 15 | 3.5 | 1.4 | 3.8 | 1.5 | 12 | 3.9 |
| APR 11... | 122 | 14 | 14 | 3.5 | 1.3 | 3.6 | 1.7 | 14 | 2.9 |
| MAY 17... | 107 | 14 | 14 | 3.4 | 1.4 | 3.4 | 1.3 | 13 | 3.7 |
| JUL 10... | 117 | 16 | 16 | 3.8 | 1.5 | 3.3 | 3.6 | 18 | 2.8 |
| AUG 20... | 92 | 14 | 14 | 3.4 | 1.3 | 2.3 | 2.0 | 10 | 4.3 |

## 03164000 NEW RIVER NEAR GALAX, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT<br>12... | 6.6 | <0.1 | 9.0 | 35 | 37 | <0.01 | <0.10 | <0.01 | 110 |
| NOV<br>20... | 3.2 | <0.1 | 10 | 36 | 34 | <0.01 | 0.46 | <0.01 | 82 |
| JAN<br>15... | 8.7 | <0.1 | 11 | 53 | 47 | 0.01 | 0.76 | 0.09 | 73 |
| FEB<br>25... | 5.8 | <0.1 | 8.8 | 38 | 36 | <0.01 | 0.77 | 0.02 | 59 |
| APR<br>11... | 4.9 | 0.1 | 8.9 | 31 | 35 | <0.01 | 0.39 | 0.02 | 74 |
| MAY<br>17... | 3.6 | <0.1 | 8.5 | 38 | 33 | <0.01 | 0.52 | 0.02 | 130 |
| JUL<br>10... | 2.9 | <0.1 | 4.5 | 33 | 33 | <0.01 | <0.10 | <0.01 | 230 |
| AUG<br>20... | 3.0 | <0.1 | 7.6 | 42 | 30 | <0.01 | 0.74 | <0.01 | 140 |

## 03165000 CHESTNUT CREEK AT GALAX, VA

LOCATION.--Lat 36°38'45", long 80°55'10", Galax City, Hydrologic Unit 05050001, on right bank 200 ft upstream from bridge on State Highway 89 and 1.7 mi downstream from Wards Mill Branch.

DRAINAGE AREA.--39.4 mi².

PERIOD OF RECORD.--September 1944 to current year.

REVISED RECORDS.--WSP 1385: 1953.

GAGE.--Water-stage recorder. Concrete control since Aug. 30, 1979. Datum of gage is 2,344.17 ft above National Geodetic Vertical Datum of 1929. Prior to June 25, 1948, nonrecording gage, and June 25, 1948, to May 28, 1953, water-stage recorder, at site 200 ft upstream at datum 0.86 ft higher.

REMARKS.--Estimated daily discharges: Jan. 15, 16, 20-30. Records fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--41 years, 67.4 ft³/s, 23.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft³/s, Oct. 17, 1947, gage height, 14.4 ft, from floodmark, site and datum then in use, from rating curve extended above 2,200 ft³/s on basis of two slope-area and one contracted-opening measurements at gage heights 9.5 ft, 14.4 ft, and 17.4 ft, respectively, site and datum then in use; minimum, 12 ft³/s, part or all of each day Aug. 25-30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 14, 1940, reached a stage of 17.4 ft, at site and datum used 1944-53, discharge, 11,000 ft³/s, by contracted-opening measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 850 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 12 | 0530 | 1,020 | 3.55 | Aug. 18 | 0345 | *2,250 | *5.97 |

Minimum daily discharge, 22 ft³/s, Jan. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 104 | 33 | 47 | 32 | 193 | 52 | 57 | 36 | 42 | 50 | 50 | 44 |
| 2 | 43 | 33 | 42 | 34 | 176 | 51 | 45 | 38 | 45 | 41 | 38 | 42 |
| 3 | 36 | 32 | 42 | 95 | 74 | 48 | 43 | 41 | 42 | 35 | 33 | 40 |
| 4 | 35 | 55 | 37 | 141 | 58 | 46 | 42 | 36 | 77 | 32 | 31 | 37 |
| 5 | 33 | 56 | 44 | 82 | 54 | 45 | 41 | 35 | 94 | 31 | 29 | 36 |
| 6 | 33 | 37 | 57 | 59 | 61 | 44 | 74 | 34 | 48 | 31 | 30 | 36 |
| 7 | 34 | 33 | 45 | 51 | 55 | 43 | 49 | 33 | 52 | 31 | 32 | 35 |
| 8 | 35 | 32 | 43 | 45 | 61 | 44 | 45 | 33 | 54 | 27 | 35 | 45 |
| 9 | 35 | 31 | 41 | 41 | 98 | 46 | 44 | 33 | 43 | 27 | 32 | 36 |
| 10 | 35 | 31 | 40 | 39 | 63 | 43 | 43 | 35 | 38 | 26 | 29 | 34 |
| 11 | 33 | 40 | 40 | 37 | 60 | 43 | 43 | 34 | 36 | 27 | 27 | 33 |
| 12 | 33 | 33 | 36 | 41 | 415 | 42 | 42 | 37 | 37 | 29 | 27 | 33 |
| 13 | 32 | 31 | 35 | 88 | 82 | 41 | 42 | 36 | 34 | 45 | 27 | 33 |
| 14 | 32 | 30 | 34 | 68 | 68 | 41 | 42 | 33 | 33 | 46 | 29 | 32 |
| 15 | 32 | 30 | 33 | 22 | 62 | 40 | 54 | 72 | 33 | 38 | 26 | 32 |
| 16 | 32 | 30 | 33 | 30 | 60 | 39 | 62 | 230 | 37 | 34 | 25 | 32 |
| 17 | 32 | 30 | 33 | 35 | 57 | 39 | 49 | 80 | 37 | 30 | 155 | 31 |
| 18 | 33 | 30 | 33 | 34 | 64 | 37 | 44 | 58 | 45 | 27 | 1020 | 31 |
| 19 | 32 | 33 | 33 | 33 | 67 | 37 | 43 | 48 | 34 | 27 | 128 | 31 |
| 20 | 32 | 31 | 38 | 30 | 69 | 38 | 41 | 43 | 32 | 26 | 120 | 30 |
| 21 | 33 | 30 | 36 | 27 | 59 | 38 | 40 | 43 | 31 | 25 | 92 | 30 |
| 22 | 37 | 29 | 37 | 34 | 56 | 96 | 39 | 45 | 30 | 28 | 62 | 30 |
| 23 | 37 | 31 | 33 | 30 | 56 | 94 | 38 | 193 | 30 | 25 | 54 | 30 |
| 24 | 38 | 30 | 32 | 28 | 57 | 60 | 52 | 133 | 34 | 26 | 52 | 30 |
| 25 | 35 | 29 | 32 | 31 | 60 | 51 | 61 | 84 | 30 | 48 | 61 | 29 |
| 26 | 33 | 29 | 31 | 26 | 92 | 47 | 43 | 62 | 29 | 43 | 103 | 29 |
| 27 | 33 | 29 | 31 | 25 | 63 | 45 | 42 | 54 | 27 | 60 | 113 | 30 |
| 28 | 34 | 328 | 31 | 28 | 55 | 44 | 43 | 49 | 27 | 48 | 69 | 29 |
| 29 | 38 | 87 | 31 | 26 | --- | 44 | 39 | 47 | 31 | 42 | 57 | 28 |
| 30 | 33 | 58 | 32 | 25 | --- | 43 | 37 | 45 | 33 | 35 | 52 | 28 |
| 31 | 33 | --- | 32 | 45 | --- | 47 | --- | 45 | --- | 44 | 47 | --- |
| TOTAL | 1130 | 1371 | 1144 | 1362 | 2395 | 1468 | 1379 | 1825 | 1195 | 1084 | 2685 | 996 |
| MEAN | 36.5 | 45.7 | 36.9 | 43.9 | 85.5 | 47.4 | 46.0 | 58.9 | 39.8 | 35.0 | 86.6 | 33.2 |
| MAX | 104 | 328 | 57 | 141 | 415 | 96 | 74 | 230 | 94 | 60 | 1020 | 45 |
| MIN | 32 | 29 | 31 | 22 | 54 | 37 | 37 | 33 | 27 | 25 | 25 | 28 |
| CFSM | .93 | 1.16 | .94 | 1.11 | 2.17 | 1.20 | 1.17 | 1.49 | 1.01 | .89 | 2.20 | .84 |
| IN. | 1.07 | 1.29 | 1.08 | 1.29 | 2.26 | 1.39 | 1.30 | 1.72 | 1.13 | 1.02 | 2.54 | .94 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 25338 | MEAN | 69.2 | MAX | 838 | MIN | 29 | CFSM 1.76 | IN. | 23.92 |
| WTR YR 1985 | TOTAL | 18034 | MEAN | 49.4 | MAX | 1020 | MIN | 22 | CFSM 1.25 | IN. | 17.03 |

## 03166800 GLADE CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°55'51", long 80°54'02", Wythe County, Hydrologic Unit 05050001, on left bank 30 ft downstream from bridge on State Highway 629 (revised), 1.0 mi southwest of Grahams Forge, and at mile 0.4.

DRAINAGE AREA.--7.15 $mi^2$.

PERIOD OF RECORD.--May 1976 to current year.

GAGE.--Water-stage recorder. Concrete control since June 1, 1979. Elevation of gage is 1,972 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-4, Oct. 23 to Nov. 19, Dec. 8 to Jan. 3, and Jan. 8 to Feb. 20. Records fair except those for periods of no gage-height record, Oct. 1-4, Oct. 23 to Nov. 19, Dec. 8 to Jan. 3, and Jan. 8 to Feb. 20, which are poor. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years, 1.16 $ft^3/s$, 2.20 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,350 $ft^3/s$, July 5, 1984, gage height, 5.37 ft, from rating curve extended above 30 $ft^3/s$ on basis of slope-area measurement at gage height 5.11 ft; minimum, 0.02 $ft^3/s$, Sept. 14, 1981, and as result of temporary pumpage, Sept. 11, 1985; minimum gage height, 1.36 ft, Sept. 7, 1976, Sept. 11, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 100 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 17 | 2335 | *386 | *4.01 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 0.02 $ft^3/s$, Sept. 11, gage height, 1.36 ft, result of temporary pumpage; minimum daily, 0.10 $ft^3/s$, June 27, 28, July 18-22, Aug. 13, 14, Sept. 15, 23, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .45 | .24 | .38 | 1.5 | 1.5 | 1.1 | .41 | .14 | .25 | .22 | 4.0 | .23 |
| 2 | .30 | .23 | .36 | .70 | 5.0 | .92 | .36 | .16 | .26 | .16 | .68 | .20 |
| 3 | .25 | .22 | .34 | 1.5 | 2.5 | .71 | .36 | .16 | .23 | .14 | .34 | .19 |
| 4 | .24 | .22 | .32 | 3.8 | 1.7 | .61 | .34 | .13 | .22 | .12 | .25 | .17 |
| 5 | .24 | .25 | .42 | 2.4 | 1.2 | .59 | .32 | .12 | .37 | .12 | .21 | .20 |
| 6 | .24 | .24 | .44 | 1.6 | 1.0 | .58 | .53 | .12 | .29 | .19 | .22 | .22 |
| 7 | .24 | .23 | .33 | 1.3 | .84 | .58 | .36 | .13 | .25 | .14 | .20 | .17 |
| 8 | .24 | .22 | .28 | .80 | .70 | .58 | .34 | .12 | .25 | .11 | .18 | .16 |
| 9 | .24 | .22 | .27 | .70 | .55 | .60 | .32 | .12 | .20 | .11 | .16 | .16 |
| 10 | .23 | .24 | .26 | .60 | .70 | .49 | .32 | .12 | .22 | .14 | .12 | .13 |
| 11 | .21 | .40 | .30 | .54 | .60 | .53 | .30 | .13 | .22 | .17 | .13 | .11 |
| 12 | .21 | .30 | .28 | .50 | .90 | .48 | .27 | .14 | .25 | .12 | .12 | .12 |
| 13 | .21 | .27 | .27 | .40 | .80 | .36 | .24 | .14 | .21 | .21 | .10 | .12 |
| 14 | .21 | .25 | .26 | .45 | .70 | .36 | .27 | .11 | .18 | .15 | .10 | .11 |
| 15 | .21 | .24 | .25 | .28 | .62 | .39 | .38 | .11 | .17 | .12 | .12 | .10 |
| 16 | .21 | .24 | .24 | .31 | .58 | .41 | .60 | .35 | .17 | .12 | .25 | .12 |
| 17 | .21 | .23 | .24 | .40 | .56 | .41 | .30 | .18 | .17 | .12 | 19 | .12 |
| 18 | .21 | .23 | .23 | .35 | .50 | .41 | .26 | .14 | .17 | .10 | 35 | .12 |
| 19 | .21 | .40 | .23 | .33 | .60 | .37 | .23 | .13 | .16 | .10 | 2.5 | .12 |
| 20 | .21 | .30 | .23 | .30 | 2.5 | .36 | .20 | .82 | .15 | .10 | 1.3 | .12 |
| 21 | .21 | .28 | .24 | .25 | 1.6 | .36 | .17 | .38 | .14 | .10 | .82 | .12 |
| 22 | .27 | .28 | .25 | .35 | 1.2 | .48 | .18 | .84 | .14 | .10 | .57 | .11 |
| 23 | 1.3 | .28 | .26 | .31 | 1.0 | .51 | .18 | 1.4 | .12 | .11 | .46 | .10 |
| 24 | .50 | .28 | .27 | .28 | 1.1 | .46 | .20 | 1.7 | .12 | .11 | .45 | .11 |
| 25 | .30 | .28 | .30 | .30 | 1.4 | .38 | .19 | .95 | .12 | .25 | .48 | .12 |
| 26 | .27 | .28 | .45 | .26 | 3.0 | .38 | .15 | .62 | .11 | .16 | .46 | .10 |
| 27 | .25 | .28 | .38 | .23 | 1.7 | .40 | .17 | .47 | .10 | .26 | .43 | .13 |
| 28 | .24 | 1.1 | .33 | .25 | 1.2 | .38 | .20 | .39 | .10 | .16 | .35 | .12 |
| 29 | .28 | .51 | .30 | .24 | --- | .37 | .15 | .34 | .11 | .16 | .32 | .12 |
| 30 | .26 | .42 | .28 | .23 | --- | .36 | .15 | .31 | .12 | .14 | .30 | .12 |
| 31 | .24 | --- | .50 | .35 | --- | .47 | --- | .28 | --- | .17 | .26 | --- |
| TOTAL | 8.89 | 9.16 | 9.49 | 21.81 | 36.25 | 15.39 | 8.45 | 11.25 | 5.57 | 4.48 | 69.88 | 4.14 |
| MEAN | .29 | .31 | .31 | .70 | 1.29 | .50 | .28 | .36 | .19 | .14 | 2.25 | .14 |
| MAX | 1.3 | 1.1 | .50 | 3.8 | 5.0 | 1.1 | .60 | 1.7 | .37 | .26 | 35 | .23 |
| MIN | .21 | .22 | .23 | .23 | .50 | .36 | .15 | .11 | .10 | .10 | .10 | .10 |
| CFSM | .04 | .04 | .04 | .10 | .18 | .07 | .04 | .05 | .03 | .02 | .31 | .02 |
| IN. | .05 | .05 | .05 | .11 | .19 | .08 | .04 | .06 | .03 | .02 | .36 | .02 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 1171.60 | MEAN | 3.20 | MAX | 500 | MIN | .13 | CFSM | .45 | IN. | 6.10 |
| WTR YR 1985 | TOTAL | 204.76 | MEAN | .56 | MAX | 35 | MIN | .10 | CFSM | .08 | IN. | 1.07 |

## 03167000 REED CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°56'22", long 80°53'13", Wythe County, Hydrologic Unit 05050001, on left bank 20 ft downstream from bridge on State Highway 619 at Grahams Forge, 2.2 mi downstream from Glade Creek, and at mile 7.3.

DRAINAGE AREA.--247 mi$^2$.

PERIOD OF RECORD.--July 1908 to September 1916, January 1927 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1235: 1912-13, 1915-16. WSP 1275: 1911, 1927-28(M), 1930-34(M). WSP 1705: 1913(M), 1916(M), 1957 calendar year runoff. WSP 1725: 1915 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,924.65 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1916, nonrecording gage at same site at datum 0.68 ft lower. Feb. 3, 1927, to Oct. 28, 1934, and June 11, 1974, to July 22, 1975, nonrecording gage, at present site and datum.

REMARKS.--Estimated daily discharges: Jan. 21-30, Mar. 18 to Apr. 5, and Apr. 17 to May 12. Records good except those for periods with ice effect, Jan. 21-30, and periods of doubtful or no gage-height record, Mar. 18 to Apr. 5 and Apr. 17 to May 12, which are fair. Occasional diurnal fluctuation at low flow caused by mills upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--66 years, 268 ft$^3$/s, 14.73 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft$^3$/s, July 16, 1916, gage height, 11.4 ft, present datum, from floodmarks, from rating curve extended above 7,600 ft$^3$/s on basis of velocity-area study and slope-area measurement at gage heights 11.4 ft and 10.01 ft, respectively; minimum observed, about 5 ft$^3$/s, Dec. 22, 1909, gage height, 0.49 ft, present datum, result of freezeup; minimum daily, 22 ft$^3$/s, Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,300 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 1630 | *2,310 | *4.07 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 46 ft$^3$/s, June 29, July 24, gage height, 1.31 ft; minimum daily, 62 ft$^3$/s, July 24.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 172 | 93 | 138 | 530 | 587 | 463 | 250 | 120 | 118 | 79 | 432 | 108 |
| 2 | 129 | 92 | 119 | 296 | 1890 | 398 | 230 | 110 | 113 | 83 | 739 | 102 |
| 3 | 100 | 91 | 108 | 412 | 1060 | 340 | 200 | 150 | 113 | 81 | 247 | 99 |
| 4 | 92 | 91 | 102 | 1190 | 614 | 301 | 170 | 140 | 107 | 78 | 158 | 95 |
| 5 | 88 | 97 | 101 | 1190 | 445 | 279 | 160 | 120 | 102 | 74 | 122 | 92 |
| 6 | 88 | 94 | 118 | 624 | 375 | 259 | 177 | 110 | 138 | 74 | 111 | 87 |
| 7 | 87 | 90 | 109 | 418 | 330 | 236 | 177 | 108 | 141 | 74 | 108 | 87 |
| 8 | 85 | 89 | 103 | 326 | 261 | 225 | 189 | 104 | 115 | 68 | 106 | 85 |
| 9 | 88 | 87 | 104 | 268 | 215 | 249 | 216 | 100 | 106 | 68 | 97 | 85 |
| 10 | 88 | 90 | 104 | 232 | 240 | 256 | 203 | 98 | 97 | 65 | 88 | 90 |
| 11 | 86 | 125 | 106 | 210 | 221 | 250 | 190 | 100 | 92 | 69 | 82 | 84 |
| 12 | 84 | 120 | 106 | 194 | 324 | 252 | 182 | 120 | 105 | 71 | 78 | 80 |
| 13 | 84 | 107 | 104 | 161 | 305 | 237 | 172 | 113 | 105 | 91 | 76 | 81 |
| 14 | 82 | 98 | 100 | 165 | 261 | 223 | 164 | 105 | 94 | 147 | 72 | 78 |
| 15 | 83 | 94 | 97 | 160 | 246 | 214 | 163 | 101 | 87 | 114 | 71 | 75 |
| 16 | 86 | 91 | 94 | 123 | 215 | 204 | 250 | 142 | 85 | 102 | 80 | 75 |
| 17 | 85 | 90 | 92 | 164 | 216 | 194 | 220 | 137 | 86 | 84 | 155 | 75 |
| 18 | 84 | 90 | 91 | 144 | 195 | 180 | 190 | 131 | 87 | 76 | 1640 | 72 |
| 19 | 84 | 105 | 90 | 137 | 240 | 170 | 170 | 126 | 83 | 71 | 927 | 71 |
| 20 | 83 | 122 | 91 | 120 | 321 | 165 | 150 | 123 | 81 | 68 | 443 | 70 |
| 21 | 82 | 116 | 93 | 100 | 457 | 175 | 140 | 112 | 80 | 64 | 294 | 70 |
| 22 | 85 | 103 | 97 | 130 | 621 | 200 | 130 | 109 | 78 | 63 | 225 | 68 |
| 23 | 122 | 96 | 100 | 120 | 796 | 520 | 120 | 185 | 77 | 63 | 187 | 69 |
| 24 | 134 | 94 | 105 | 110 | 859 | 420 | 130 | 278 | 74 | 62 | 168 | 69 |
| 25 | 107 | 93 | 114 | 115 | 718 | 340 | 270 | 467 | 73 | 72 | 203 | 68 |
| 26 | 102 | 91 | 165 | 100 | 884 | 280 | 220 | 334 | 72 | 91 | 190 | 68 |
| 27 | 97 | 90 | 148 | 90 | 801 | 240 | 150 | 236 | 68 | 93 | 160 | 68 |
| 28 | 95 | 200 | 128 | 95 | 582 | 220 | 160 | 187 | 67 | 95 | 143 | 72 |
| 29 | 104 | 289 | 117 | 92 | --- | 210 | 150 | 161 | 69 | 92 | 128 | 69 |
| 30 | 103 | 179 | 111 | 90 | --- | 200 | 130 | 145 | 67 | 86 | 119 | 67 |
| 31 | 97 | --- | 160 | 119 | --- | 190 | --- | 129 | --- | 102 | 113 | --- |
| TOTAL | 2986 | 3307 | 3415 | 8225 | 14279 | 8090 | 5423 | 4701 | 2780 | 2520 | 7762 | 2379 |
| MEAN | 96.3 | 110 | 110 | 265 | 510 | 261 | 181 | 152 | 92.7 | 81.3 | 250 | 79.3 |
| MAX | 172 | 289 | 165 | 1190 | 1890 | 520 | 270 | 467 | 141 | 147 | 1640 | 108 |
| MIN | 82 | 87 | 90 | 90 | 195 | 165 | 120 | 98 | 67 | 62 | 71 | 67 |
| CFSM | .39 | .45 | .45 | 1.07 | 2.06 | 1.06 | .73 | .62 | .38 | .33 | 1.01 | .32 |
| IN. | .45 | .50 | .51 | 1.24 | 2.15 | 1.22 | .82 | .71 | .42 | .38 | 1.17 | .36 |

CAL YR 1984 TOTAL 120098 MEAN 328 MAX 3880 MIN 79 CFSM 1.33 IN. 18.09
WTR YR 1985 TOTAL 65867 MEAN 180 MAX 1890 MIN 62 CFSM .73 IN. 9.92

## 03167500 BIG REED ISLAND CREEK NEAR ALLISONIA, VA

LOCATION.--Lat 36°53'20", long 80°43'40", Pulaski County, Hydrologic Unit 05050001, on left bank 700 ft downstream from bridge on State Highway 693, 3.5 mi southeast of Allisonia, 4 mi upstream from Little Reed Island Creek, and at mile 4.5.

DRAINAGE AREA.--278 mi².

PERIOD OF RECORD.--August 1908 to September 1916, April 1939 to current year.

REVISED RECORDS.--WSP 1033: 1939(P), 1940, 1941-43(P). WSP 1305: 1912(M). WSP 1625: 1940, 1945(M), 1947, 1951, 1952(M).

GAGE.--Water-stage recorder. Datum of gage is 1,902.74 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1916, nonrecording gage at site 4 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Jan. 21-30 and Sept. 7-30. Records good except those for period with ice effect, Jan. 21-30, and period of no gage-height record, Sept. 7-30, which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 400 ft³/s, 19.54 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s, Sept. 30, 1959, gage height, 12.54 ft, from rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 63 ft³/s, Jan. 20, 1971, gage height, 1.63 ft, result of freezeup; minimum daily, 75 ft³/s, Jan. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 1300 | 3,510 | 5.91 | Aug. 18 | 0800 | *5,330 | *7.22 |

Minimum discharge, 96 ft³/s, Jan. 21, gage height, 1.83 ft, result of freezeup; minimum daily, 108 ft³/s, July 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 652 | 184 | 277 | 198 | 686 | 310 | 276 | 174 | 195 | 232 | 398 | 240 |
| 2 | 282 | 182 | 243 | 214 | 1480 | 286 | 237 | 175 | 180 | 291 | 551 | 233 |
| 3 | 200 | 178 | 233 | 441 | 711 | 263 | 214 | 213 | 187 | 187 | 298 | 221 |
| 4 | 187 | 193 | 220 | 890 | 426 | 247 | 206 | 201 | 172 | 161 | 210 | 208 |
| 5 | 181 | 506 | 216 | 676 | 351 | 245 | 196 | 172 | 300 | 144 | 178 | 199 |
| 6 | 178 | 328 | 285 | 411 | 363 | 230 | 320 | 163 | 289 | 144 | 168 | 210 |
| 7 | 177 | 240 | 233 | 320 | 354 | 220 | 313 | 157 | 232 | 148 | 169 | 190 |
| 8 | 178 | 214 | 218 | 275 | 197 | 226 | 256 | 153 | 252 | 138 | 469 | 185 |
| 9 | 184 | 204 | 300 | 238 | 202 | 273 | 230 | 149 | 202 | 121 | 430 | 200 |
| 10 | 196 | 201 | 294 | 223 | 342 | 227 | 215 | 148 | 172 | 116 | 248 | 190 |
| 11 | 186 | 220 | 267 | 213 | 337 | 218 | 207 | 155 | 159 | 136 | 190 | 180 |
| 12 | 181 | 224 | 244 | 196 | 1050 | 230 | 204 | 188 | 188 | 123 | 164 | 175 |
| 13 | 178 | 197 | 229 | 162 | 483 | 210 | 197 | 189 | 178 | 243 | 150 | 170 |
| 14 | 177 | 189 | 220 | 251 | 325 | 202 | 197 | 168 | 149 | 315 | 146 | 165 |
| 15 | 176 | 188 | 213 | 218 | 330 | 195 | 199 | 186 | 145 | 183 | 139 | 160 |
| 16 | 177 | 187 | 209 | 178 | 267 | 186 | 405 | 692 | 163 | 173 | 151 | 155 |
| 17 | 176 | 182 | 206 | 227 | 301 | 184 | 346 | 446 | 173 | 156 | 352 | 155 |
| 18 | 178 | 179 | 203 | 232 | 304 | 178 | 261 | 290 | 163 | 128 | 3600 | 150 |
| 19 | 178 | 200 | 203 | 221 | 293 | 173 | 230 | 224 | 153 | 117 | 1070 | 150 |
| 20 | 187 | 228 | 221 | 192 | 328 | 174 | 211 | 194 | 160 | 113 | 560 | 145 |
| 21 | 178 | 193 | 219 | 115 | 319 | 174 | 190 | 209 | 132 | 108 | 514 | 145 |
| 22 | 187 | 176 | 240 | 170 | 338 | 207 | 186 | 224 | 127 | 123 | 359 | 140 |
| 23 | 196 | 172 | 230 | 150 | 342 | 463 | 181 | 768 | 123 | 133 | 290 | 145 |
| 24 | 220 | 200 | 203 | 140 | 331 | 391 | 199 | 943 | 124 | 111 | 265 | 150 |
| 25 | 251 | 210 | 199 | 150 | 330 | 328 | 398 | 632 | 125 | 157 | 319 | 160 |
| 26 | 197 | 190 | 191 | 140 | 515 | 275 | 290 | 387 | 124 | 578 | 554 | 150 |
| 27 | 187 | 180 | 186 | 120 | 462 | 249 | 229 | 279 | 139 | 583 | 976 | 140 |
| 28 | 183 | 590 | 188 | 135 | 361 | 234 | 236 | 239 | 118 | 441 | 552 | 135 |
| 29 | 241 | 714 | 185 | 130 | --- | 226 | 216 | 231 | 137 | 285 | 380 | 135 |
| 30 | 222 | 349 | 185 | 120 | --- | 217 | 186 | 213 | 187 | 255 | 314 | 130 |
| 31 | 191 | --- | 202 | 335 | --- | 213 | --- | 203 | --- | 292 | 273 | --- |
| TOTAL | 6462 | 7398 | 6962 | 7681 | 12108 | 7454 | 7239 | 8765 | 5116 | 6435 | 14445 | 5127 |
| MEAN | 208 | 247 | 225 | 248 | 432 | 240 | 241 | 283 | 171 | 208 | 466 | 171 |
| MAX | 652 | 714 | 300 | 890 | 1480 | 463 | 405 | 943 | 300 | 583 | 3600 | 240 |
| MIN | 176 | 172 | 185 | 115 | 197 | 173 | 181 | 148 | 118 | 108 | 139 | 130 |
| CFSM | .75 | .89 | .81 | .89 | 1.55 | .86 | .87 | 1.02 | .62 | .75 | 1.68 | .62 |
| IN. | .86 | .99 | .93 | 1.03 | 1.62 | 1.00 | .97 | 1.17 | .68 | .86 | 1.93 | .69 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 153854 | MEAN | 420 | MAX | 3370 | MIN | 159 | CFSM 1.51 | IN. | 20.59 |
| WTR YR 1985 | TOTAL | 95192 | MEAN | 261 | MAX | 3600 | MIN | 108 | CFSM .94 | IN. | 12.74 |

## 03168000 NEW RIVER AT ALLISONIA, VA

LOCATION.--Lat 36°56'15", long 80°44'45", Pulaski County, Hydrologic Unit 05050001, on left bank on State Highway 653, 0.2 mi downstream from Big Reed Island Creek, and 0.5 mi upstream from Allisonia.

DRAINAGE AREA.--2,202 mi$^2$.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 783: Drainage area. WSP 823: 1936. WSP 1305: 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,848.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 16-30. Records good. Large diurnal fluctuation and some regulation by powerplant 25 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 3,207 ft$^3$/s, 19.78 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 185,000 ft$^3$/s, Aug. 14, 1940, gage height, 23.42 ft, from rating curve extended above 52,000 ft$^3$/s on basis of flood records for other stations on New River; minimum, 412 ft$^3$/s, Sept. 7, 1930, gage height, 0.47 ft; minimum daily, 453 ft$^3$/s, Sept. 6, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 17,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 1415 | 18,700 | 5.75 | Aug. 18 | 1630 | *21,800 | *6.25 |

Minimum discharge, 633 ft$^3$/s, June 28, gage height, 0.88 ft; minimum daily, 673 ft$^3$/s, June 28.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3010 | 1390 | 2400 | 1700 | 2860 | 3890 | 2350 | 1530 | 1240 | 1380 | 2050 | 1630 |
| 2 | 2020 | 1450 | 2180 | 2360 | 10400 | 3090 | 2250 | 1700 | 1600 | 1540 | 3010 | 1480 |
| 3 | 2040 | 1010 | 2120 | 2680 | 9530 | 2990 | 2150 | 1610 | 1900 | 1370 | 1550 | 1750 |
| 4 | 1270 | 1240 | 1960 | 5370 | 5990 | 2780 | 1900 | 1370 | 1490 | 891 | 1670 | 1740 |
| 5 | 1360 | 2120 | 1590 | 6720 | 4200 | 2630 | 1740 | 1640 | 1930 | 1440 | 1780 | 923 |
| 6 | 1130 | 1690 | 1970 | 4930 | 3480 | 2350 | 1940 | 1890 | 1570 | 970 | 1110 | 1290 |
| 7 | 1220 | 1600 | 1960 | 3840 | 3280 | 2380 | 2490 | 1440 | 1660 | 1130 | 1140 | 1180 |
| 8 | 1400 | 1570 | 1450 | 2980 | 2540 | 1930 | 2570 | 1370 | 1460 | 1170 | 1500 | 1410 |
| 9 | 1280 | 1300 | 1650 | 2610 | 1820 | 2060 | 2280 | 1320 | 1790 | 1030 | 1530 | 1510 |
| 10 | 1440 | 1010 | 2060 | 2350 | 2080 | 2170 | 1960 | 1420 | 1860 | 938 | 1010 | 1490 |
| 11 | 1270 | 1560 | 1960 | 1950 | 2530 | 2560 | 1930 | 997 | 1420 | 945 | 1250 | 1230 |
| 12 | 1300 | 2310 | 1850 | 1690 | 5780 | 1970 | 2140 | 1470 | 1360 | 948 | 1420 | 1160 |
| 13 | 1130 | 2220 | 1720 | 1390 | 5190 | 2020 | 1660 | 2160 | 1700 | 1160 | 1120 | 1040 |
| 14 | 1120 | 1670 | 1820 | 1820 | 3030 | 1940 | 1880 | 1670 | 1380 | 1550 | 849 | 1020 |
| 15 | 1460 | 1500 | 1440 | 1600 | 2470 | 2010 | 2120 | 1500 | 1070 | 1560 | 972 | 1030 |
| 16 | 1200 | 1310 | 1550 | 1300 | 2290 | 1480 | 2500 | 3060 | 1170 | 1550 | 973 | 1130 |
| 17 | 1080 | 1060 | 1770 | 1400 | 2230 | 1810 | 3180 | 3050 | 1640 | 1120 | 1510 | 1100 |
| 18 | 1330 | 1320 | 1610 | 1500 | 2340 | 2010 | 3160 | 1840 | 1450 | 1100 | 16800 | 1030 |
| 19 | 1130 | 1650 | 1390 | 1400 | 2600 | 1660 | 2390 | 1960 | 1380 | 947 | 10300 | 1080 |
| 20 | 1170 | 1430 | 1580 | 1150 | 2840 | 1660 | 1910 | 2320 | 1280 | 822 | 4920 | 1050 |
| 21 | 1210 | 1400 | 1750 | 900 | 3090 | 1520 | 2030 | 1620 | 934 | 725 | 3710 | 865 |
| 22 | 1480 | 1170 | 1490 | 1000 | 3360 | 1850 | 2150 | 1700 | 898 | 760 | 2540 | 938 |
| 23 | 1600 | 1490 | 1820 | 980 | 3680 | 2470 | 1850 | 3150 | 1050 | 900 | 2250 | 1130 |
| 24 | 1630 | 1010 | 1870 | 940 | 4220 | 3100 | 1820 | 4830 | 1190 | 850 | 1580 | 1040 |
| 25 | 2040 | 1410 | 1520 | 1100 | 4200 | 3160 | 2260 | 4270 | 1120 | 1090 | 1920 | 1050 |
| 26 | 1610 | 1440 | 1920 | 900 | 5690 | 2770 | 2230 | 3740 | 1280 | 1640 | 2850 | 850 |
| 27 | 1000 | 1180 | 1800 | 850 | 5910 | 2290 | 1630 | 2880 | 766 | 2370 | 3470 | 884 |
| 28 | 1320 | 2480 | 1710 | 900 | 5010 | 2260 | 1850 | 2730 | 673 | 2320 | 3130 | 1080 |
| 29 | 1780 | 5960 | 1390 | 880 | --- | 2170 | 2150 | 2130 | 944 | 2880 | 2600 | 893 |
| 30 | 1500 | 4780 | 1590 | 840 | --- | 1860 | 1770 | 2070 | 1100 | 1720 | 1990 | 1140 |
| 31 | 1630 | --- | 1970 | 1470 | --- | 2010 | --- | 1670 | --- | 2130 | 1410 | --- |
| TOTAL | 45160 | 52730 | 54860 | 61500 | 112640 | 70850 | 64240 | 66107 | 40305 | 40946 | 83914 | 35143 |
| MEAN | 1457 | 1758 | 1770 | 1984 | 4023 | 2285 | 2141 | 2132 | 1344 | 1321 | 2707 | 1171 |
| MAX | 3010 | 5960 | 2400 | 6720 | 10400 | 3890 | 3180 | 4830 | 1930 | 2880 | 16800 | 1750 |
| MIN | 1000 | 1010 | 1390 | 840 | 1820 | 1480 | 1630 | 997 | 673 | 725 | 849 | 850 |
| CFSM | .66 | .80 | .80 | .90 | 1.83 | 1.04 | .97 | .97 | .61 | .60 | 1.23 | .53 |
| IN. | .76 | .89 | .93 | 1.04 | 1.90 | 1.20 | 1.09 | 1.12 | .68 | .69 | 1.42 | .59 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 1284231 | MEAN | 3509 | MAX | 30000 | MIN | 882 | CFSM 1.59 | IN. | 21.70 |
| WTR YR 1985 | TOTAL | 728395 | MEAN | 1996 | MAX | 16800 | MIN | 673 | CFSM .91 | IN. | 12.31 |

## 03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA

**LOCATION.**--Lat 37°04'28", long 80°35'05", Pulaski County, Hydrologic Unit 05050001, at Claytor Dam on New River, 0.5 mi upstream from Little River, and 5.5 mi upstream from Radford.

**DRAINAGE AREA.**--2,382 mi².

**PERIOD OF RECORD.**--May 1939 to current year (monthly figures only).

**REVISED RECORDS.**--WSP 2108: 1961-65 monthend contents and change in contents.

**GAGE.**--Water-stage recorder. Datum of gage is approximately National Geodetic Vertical Datum of 1929 (levels by Appalachian Power Company). Prior to Sept. 11, 1943, nonrecording gage at same site and datum.

**REMARKS.**--Reservoir is formed by gravity overflow concrete dam. Spillway with crest at elevation 1,818.5 ft is equipped with 9 lift gates 30 ft high by 50 ft wide. Dam completed and storage began May 22, 1939; water in reservoir reached minimum pool elevation in January 1940. Total level-pool capacity at elevation 1,847.0 ft, 1.5 ft below top of gates, is 230,100 acre-ft of which about 100,000 acre-ft is controlled storage above minimum pool elevation of 1,820.0 ft. Reservoir is used for hydroelectric power and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

**COOPERATION.**--Records were provided by the Appalachian Power Company.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 1,845.82 | 224,700 | - |
| Oct. 31 | 1,844.73 | 220,100 | -4,600 |
| Nov. 30 | 1,843.39 | 214,300 | -5,800 |
| Dec. 31 | 1,845.12 | 221,700 | +7,400 |
| CAL YR 1984 | - | - | +6,000 |
| Jan. 31 | 1,844.96 | 221,100 | -600 |
| Feb. 28 | 1,844.69 | 219,900 | -1,200 |
| Mar. 31 | 1,845.21 | 222,100 | +2,200 |
| Apr. 30 | 1,845.58 | 223,700 | +1,600 |
| May 31 | 1,843.76 | 215,900 | -7,800 |
| June 30 | 1,845.83 | 224,800 | +8,900 |
| July 31 | 1,845.53 | 223,500 | -1,300 |
| Aug. 31 | 1,844.16 | 217,600 | -5,900 |
| Sept. 30 | 1,845.78 | 224,600 | +7,000 |
| WTR YR 1985 | - | - | -100 |

## 03170000 LITTLE RIVER AT GRAYSONTON, VA

LOCATION.--Lat 37°02'15", long 80°33'25", Pulaski County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 693 at Snowville, 0.5 mi southeast of Graysonton, 7 mi south of Radford, and at mile 8.6.

DRAINAGE AREA.--300 mi$^2$.

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 823: 1929-36. WSP 1143: 1945. WSP 1305: 1929(M). WSP 1555: Drainage area (at site used 1928-41). WSP 1625: 1951(M). WSP 1725: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 1,816.04 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 20, 1931, nonrecording gage at bridge 1.0 mi downstream at datum 17.99 ft lower. Nov. 20, 1931, to Nov. 12, 1941, water-stage recorder 1.2 mi downstream at datum 20.58 ft lower.

REMARKS.--Estimated daily discharges: Jan. 16, 21-30. Records fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 362 ft$^3$/s, 16.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft$^3$/s, June 21, 1972, gage height, 13.40 ft, from rating curve extended above 16,000 ft$^3$/s on basis of slope-area measurements at gage heights 12.76 ft and 13.40 ft; minimum, 21 ft$^3$/s, Feb. 22, 1942, result of freezeup; minimum daily, 50 ft$^3$/s, Sept. 21, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Aug. 18 | 2000 | *5,330 | *5.54 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 82 ft$^3$/s, July 22, 23, gage height, 0.82 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 457 | 166 | 241 | 198 | 389 | 329 | 248 | 174 | 186 | 193 | 187 | 207 |
| 2 | 338 | 164 | 215 | 193 | 1560 | 295 | 241 | 171 | 174 | 234 | 212 | 196 |
| 3 | 211 | 162 | 201 | 293 | 725 | 270 | 213 | 194 | 169 | 199 | 192 | 190 |
| 4 | 185 | 169 | 197 | 925 | 388 | 251 | 206 | 201 | 180 | 172 | 149 | 179 |
| 5 | 176 | 271 | 190 | 604 | 300 | 244 | 198 | 174 | 182 | 139 | 133 | 171 |
| 6 | 169 | 286 | 211 | 382 | 310 | 231 | 217 | 163 | 201 | 130 | 125 | 166 |
| 7 | 166 | 203 | 184 | 309 | 271 | 215 | 242 | 157 | 198 | 124 | 129 | 163 |
| 8 | 166 | 181 | 146 | 278 | 205 | 218 | 220 | 152 | 266 | 120 | 137 | 164 |
| 9 | 168 | 175 | 210 | 243 | 199 | 302 | 217 | 149 | 223 | 109 | 173 | 167 |
| 10 | 170 | 172 | 226 | 224 | 225 | 284 | 205 | 146 | 183 | 103 | 142 | 157 |
| 11 | 168 | 177 | 228 | 216 | 241 | 251 | 200 | 146 | 167 | 120 | 121 | 151 |
| 12 | 164 | 183 | 214 | 173 | 297 | 253 | 198 | 157 | 187 | 140 | 111 | 145 |
| 13 | 162 | 171 | 199 | 139 | 431 | 235 | 194 | 230 | 199 | 134 | 104 | 150 |
| 14 | 161 | 162 | 191 | 194 | 290 | 219 | 192 | 171 | 171 | 164 | 101 | 148 |
| 15 | 160 | 161 | 184 | 225 | 253 | 212 | 194 | 153 | 157 | 143 | 100 | 139 |
| 16 | 160 | 161 | 182 | 160 | 227 | 201 | 325 | 284 | 153 | 186 | 99 | 138 |
| 17 | 161 | 159 | 178 | 199 | 221 | 197 | 358 | 357 | 151 | 143 | 124 | 136 |
| 18 | 162 | 158 | 178 | 216 | 217 | 195 | 274 | 258 | 160 | 121 | 2640 | 133 |
| 19 | 163 | 176 | 178 | 211 | 302 | 186 | 234 | 213 | 149 | 105 | 1670 | 131 |
| 20 | 161 | 218 | 181 | 172 | 540 | 184 | 215 | 188 | 139 | 96 | 524 | 129 |
| 21 | 159 | 191 | 185 | 110 | 540 | 184 | 201 | 185 | 133 | 91 | 399 | 127 |
| 22 | 163 | 168 | 199 | 130 | 517 | 199 | 192 | 197 | 128 | 86 | 324 | 126 |
| 23 | 175 | 150 | 201 | 135 | 495 | 409 | 183 | 328 | 125 | 87 | 270 | 129 |
| 24 | 187 | 164 | 186 | 120 | 396 | 436 | 184 | 501 | 120 | 95 | 245 | 134 |
| 25 | 229 | 173 | 178 | 140 | 365 | 360 | 349 | 511 | 121 | 133 | 291 | 130 |
| 26 | 201 | 182 | 175 | 120 | 589 | 295 | 282 | 352 | 118 | 491 | 457 | 126 |
| 27 | 177 | 175 | 170 | 110 | 544 | 263 | 222 | 262 | 110 | 339 | 795 | 120 |
| 28 | 170 | 249 | 171 | 120 | 396 | 246 | 210 | 220 | 108 | 294 | 433 | 118 |
| 29 | 177 | 666 | 171 | 115 | --- | 232 | 201 | 205 | 128 | 216 | 304 | 116 |
| 30 | 188 | 304 | 170 | 110 | --- | 222 | 183 | 194 | 178 | 198 | 254 | 114 |
| 31 | 172 | --- | 183 | 179 | --- | 216 | --- | 189 | --- | 176 | 226 | --- |
| TOTAL | 5826 | 6097 | 5923 | 6943 | 11433 | 7834 | 6798 | 6982 | 4864 | 5081 | 11171 | 4400 |
| MEAN | 188 | 203 | 191 | 224 | 408 | 253 | 227 | 225 | 162 | 164 | 360 | 147 |
| MAX | 457 | 666 | 241 | 925 | 1560 | 436 | 358 | 511 | 266 | 491 | 2640 | 207 |
| MIN | 159 | 150 | 146 | 110 | 199 | 184 | 183 | 146 | 108 | 86 | 99 | 114 |
| CFSM | .63 | .68 | .64 | .75 | 1.36 | .84 | .76 | .75 | .54 | .55 | 1.20 | .49 |
| IN. | .72 | .76 | .73 | .86 | 1.42 | .97 | .84 | .87 | .60 | .63 | 1.39 | .55 |

CAL YR 1984 TOTAL 132607 MEAN 362 MAX 2900 MIN 139 CFSM 1.21 IN. 16.44
WTR YR 1985 TOTAL 83352 MEAN 228 MAX 2640 MIN 86 CFSM .76 IN. 10.34

## 03171000 NEW RIVER AT RADFORD, VA

LOCATION.--Lat 37°08'30", long 80°34'10", Pulaski County, Hydrologic Unit 05050001, on left bank 2,000 ft downstream from bridge on U.S. Highway 11 at Radford, 5 mi downstream from Little River, and 5.5 mi downstream from Claytor Dam.

DRAINAGE AREA.--2,748 $mi^2$.

PERIOD OF RECORD.--October 1907 to September 1915, August 1939 to current year. Records for August 1898 to September 1907, published in WSP 27, 36, 48, 65, 83, 98, 128, 169, 205, 243, and 536, are unreliable and should not be used. Gage-height records collected at same site since 1895 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 873: Drainage area. WSP 953: 1940-41. WSP 1305: 1908-12. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,712.16 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 30, 1939, nonrecording gage at highway bridge 2,000 ft upstream at datum 0.85 ft lower.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated since 1939 by Claytor Reservoir (station 03169000). Some additional regulation at low flow by dam and powerplant on Little River. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 3,861 $ft^3/s$, 19.08 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 218,000 $ft^3/s$, Aug. 14, 1940, gage height, 35.96 ft, from rating curve extended above 76,000 $ft^3/s$ on basis of records for other stations on New River and flow over Claytor Dam, computed by Appalachian Power Company; minimum, 165 $ft^3/s$, Aug. 25, 27, 1944, gage height, 1.08 ft; minimum daily, 550 $ft^3/s$, Aug. 22, 1911.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1916, reached a stage of 35.7 ft, discharge, 200,000 $ft^3/s$, at site and datum used by Geological Survey 1907-15, from reports of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,100 $ft^3/s$, Aug. 18, gage height, 6.71 ft; minimum, 584 $ft^3/s$, Feb. 9, May 10, gage height, 1.65 ft; minimum daily, 917 $ft^3/s$, May 11.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4100 | 2180 | 2150 | 1100 | 7990 | 5880 | 2090 | 1960 | 1040 | 1620 | 3680 | 1140 |
| 2 | 3910 | 2020 | 1130 | 2890 | 12900 | 3470 | 2090 | 1890 | 1000 | 2390 | 3600 | 1130 |
| 3 | 3040 | 1080 | 2190 | 6380 | 9400 | 1030 | 3560 | 2890 | 980 | 2630 | 1160 | 1820 |
| 4 | 3260 | 1030 | 2310 | 8750 | 6960 | 3860 | 4020 | 1100 | 965 | 1040 | 1100 | 1990 |
| 5 | 1210 | 2010 | 2920 | 7090 | 4400 | 4260 | 2850 | 962 | 1850 | 1440 | 2240 | 2060 |
| 6 | 946 | 2110 | 3060 | 2740 | 5240 | 3900 | 994 | 2540 | 1850 | 1070 | 2160 | 2020 |
| 7 | 1060 | 2020 | 1140 | 5450 | 4040 | 3510 | 1040 | 2250 | 2870 | 994 | 1320 | 1150 |
| 8 | 1400 | 2010 | 1160 | 4320 | 3690 | 2060 | 3890 | 1890 | 1210 | 1570 | 1500 | 1140 |
| 9 | 1540 | 1640 | 1040 | 4210 | 1070 | 1080 | 3440 | 1960 | 1100 | 1720 | 1920 | 1720 |
| 10 | 1350 | 1110 | 1950 | 4090 | 1020 | 1150 | 3570 | 1690 | 2300 | 1170 | 1090 | 1860 |
| 11 | 1200 | 1040 | 1830 | 2520 | 3040 | 5000 | 2670 | 917 | 2280 | 1220 | 1000 | 2000 |
| 12 | 1220 | 3480 | 3160 | 1060 | 9470 | 2660 | 3130 | 1030 | 2470 | 1900 | 2260 | 2000 |
| 13 | 984 | 2650 | 2460 | 954 | 5950 | 3390 | 935 | 2390 | 2240 | 1200 | 2070 | 1170 |
| 14 | 1100 | 2110 | 2450 | 2150 | 2750 | 2190 | 1040 | 2710 | 1980 | 2380 | 1030 | 1140 |
| 15 | 1150 | 2110 | 1030 | 1620 | 2520 | 2180 | 2190 | 2350 | 1050 | 2380 | 1250 | 1070 |
| 16 | 1440 | 2260 | 1110 | 1920 | 1030 | 991 | 4000 | 3490 | 995 | 2180 | 2710 | 1030 |
| 17 | 1970 | 1060 | 1970 | 1740 | 995 | 1010 | 3700 | 4750 | 1990 | 2160 | 3890 | 1210 |
| 18 | 1950 | 1010 | 2160 | 1680 | 3350 | 1980 | 4800 | 3040 | 1800 | 1680 | 15400 | 1100 |
| 19 | 1840 | 2460 | 3230 | 1110 | 3990 | 2140 | 3790 | 1090 | 1940 | 992 | 14400 | 1130 |
| 20 | 1080 | 2530 | 3480 | 1010 | 3830 | 1930 | 1070 | 2560 | 1870 | 982 | 8540 | 1120 |
| 21 | 1050 | 2050 | 2410 | 3920 | 4400 | 2190 | 987 | 2300 | 1010 | 956 | 5790 | 1110 |
| 22 | 2090 | 1020 | 1100 | 1750 | 4500 | 2450 | 2770 | 2090 | 999 | 928 | 3860 | 1090 |
| 23 | 2050 | 1040 | 1010 | 1080 | 3040 | 3930 | 2320 | 3140 | 980 | 1110 | 2720 | 980 |
| 24 | 2170 | 971 | 2130 | 956 | 4310 | 1790 | 2370 | 6190 | 1010 | 1230 | 2100 | 1060 |
| 25 | 2950 | 1110 | 981 | 1020 | 6560 | 5220 | 2960 | 6510 | 1000 | 4740 | 1570 | 1070 |
| 26 | 3320 | 1770 | 3840 | 949 | 8500 | 4440 | 4610 | 2710 | 1390 | 1130 | 3010 | 1070 |
| 27 | 1080 | 2590 | 2770 | 965 | 5990 | 3600 | 1240 | 4850 | 1450 | 6760 | 5540 | 1580 |
| 28 | 1110 | 5800 | 3450 | 1840 | 5920 | 3960 | 1010 | 3390 | 1030 | 1610 | 4070 | 1060 |
| 29 | 2530 | 8850 | 978 | 2000 | --- | 2720 | 2380 | 3750 | 1010 | 1290 | 4150 | 1060 |
| 30 | 2840 | 5130 | 1070 | 2130 | --- | 1060 | 2080 | 3420 | 1070 | 1160 | 3510 | 1170 |
| 31 | 2660 | --- | 2240 | 2130 | --- | 1050 | --- | 3670 | --- | 2190 | 1820 | --- |
| TOTAL | 59600 | 68251 | 63909 | 81524 | 136855 | 86081 | 77596 | 85479 | 44729 | 55822 | 110460 | 40250 |
| MEAN | 1923 | 2275 | 2062 | 2630 | 4888 | 2777 | 2587 | 2757 | 1491 | 1801 | 3563 | 1342 |
| MAX | 4100 | 8850 | 3840 | 8750 | 12900 | 5880 | 4800 | 6510 | 2870 | 6760 | 15400 | 2060 |
| MIN | 946 | 971 | 978 | 949 | 995 | 991 | 935 | 917 | 965 | 928 | 1000 | 980 |
| (*) | -75 | -97 | +120 | -10 | -22 | +36 | +27 | -127 | +150 | -21 | -96 | +118 |
| MEAN† | 1848 | 2178 | 2182 | 2620 | 4866 | 2813 | 2614 | 2630 | 1641 | 1780 | 3467 | 1460 |
| CFSM† | .67 | .79 | .79 | .95 | 1.77 | 1.02 | .95 | .96 | .60 | .65 | 1.26 | .53 |
| IN.† | .78 | .88 | .92 | 1.10 | 1.84 | 1.18 | 1.06 | 1.10 | .67 | .75 | 1.46 | .59 |

CAL YR 1984 TOTAL 1554054 MEAN 4246 MAX 28000 MIN 936 MEAN† 4254 CFSM† 1.55 IN.† 21.08
WTR YR 1985 TOTAL 910556 MEAN 2495 MAX 15400 MIN 917 MEAN† 2495 CFSM† .91 IN.† 12.33

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.

† Adjusted for change in contents.

## 03173000 WALKER CREEK AT BANE, VA

LOCATION.--Lat 37°16'05", long 80°42'35", Giles County, Hydrologic Unit 05050002, on left bank at Bane, 0.2 mi downstream from bridge on State Highway 100, 0.2 mi downstream from Sugar Run, and at mile 7.9.

DRAINAGE AREA.--305 mi$^2$.

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 1143: 1939(M), 1940, 1944, 1946. WSP 1305: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,665.92 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 24-30. Records fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 325 ft$^3$/s, 14.47 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft$^3$/s, Apr. 5, 1977, gage height, 16.69 ft, from rating curve extended above 7,200 ft$^3$/s on basis of slope-area measurement at gage height 16.50 ft; minimum, 15 ft$^3$/s, Dec. 21, 1958, gage height, 2.42 ft, result of freezeup; minimum daily, 24 ft$^3$/s, Sept. 27, 28, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1878 reached a stage of about 23.5 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 0100 | *3,490 | *8.71 | No peak equal to or greater than base discharge. | | | |

Minimum discharge, 39 ft$^3$/s, July 24, 25, Sept. 25, 26, gage height, 2.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 75 | 66 | 185 | 417 | 561 | 541 | 250 | 123 | 139 | 57 | 84 | 75 |
| 2 | 94 | 60 | 144 | 374 | 2620 | 455 | 232 | 119 | 122 | 65 | 128 | 71 |
| 3 | 79 | 56 | 123 | 600 | 1500 | 385 | 213 | 125 | 113 | 66 | 171 | 66 |
| 4 | 61 | 55 | 109 | 1500 | 858 | 326 | 201 | 124 | 110 | 62 | 111 | 62 |
| 5 | 55 | 56 | 100 | 1460 | 603 | 295 | 190 | 113 | 107 | 61 | 85 | 59 |
| 6 | 52 | 56 | 103 | 800 | 491 | 265 | 196 | 106 | 112 | 71 | 72 | 56 |
| 7 | 50 | 56 | 99 | 550 | 412 | 233 | 207 | 100 | 115 | 61 | 70 | 53 |
| 8 | 50 | 54 | 87 | 423 | 310 | 216 | 202 | 96 | 109 | 55 | 73 | 52 |
| 9 | 49 | 54 | 96 | 332 | 225 | 227 | 205 | 92 | 100 | 51 | 77 | 52 |
| 10 | 51 | 53 | 97 | 272 | 272 | 225 | 202 | 88 | 94 | 49 | 71 | 53 |
| 11 | 51 | 69 | 99 | 239 | 249 | 217 | 197 | 88 | 388 | 50 | 60 | 50 |
| 12 | 50 | 86 | 114 | 210 | 257 | 238 | 195 | 97 | 234 | 47 | 54 | 50 |
| 13 | 49 | 88 | 123 | 161 | 259 | 244 | 189 | 100 | 184 | 55 | 50 | 49 |
| 14 | 47 | 73 | 115 | 176 | 213 | 236 | 182 | 92 | 143 | 93 | 47 | 48 |
| 15 | 46 | 64 | 105 | 164 | 211 | 227 | 183 | 86 | 119 | 128 | 45 | 47 |
| 16 | 47 | 61 | 97 | 111 | 186 | 210 | 400 | 123 | 107 | 86 | 44 | 46 |
| 17 | 48 | 57 | 93 | 166 | 185 | 197 | 553 | 191 | 99 | 66 | 47 | 44 |
| 18 | 49 | 56 | 89 | 147 | 167 | 191 | 418 | 197 | 95 | 57 | 787 | 43 |
| 19 | 50 | 67 | 88 | 133 | 174 | 180 | 350 | 186 | 85 | 51 | 1010 | 42 |
| 20 | 49 | 103 | 88 | 112 | 214 | 167 | 303 | 175 | 78 | 47 | 450 | 42 |
| 21 | 49 | 118 | 94 | 78 | 302 | 158 | 267 | 150 | 72 | 45 | 289 | 41 |
| 22 | 50 | 90 | 102 | 85 | 461 | 166 | 237 | 137 | 67 | 43 | 210 | 41 |
| 23 | 60 | 76 | 115 | 96 | 701 | 261 | 214 | 178 | 64 | 41 | 162 | 41 |
| 24 | 69 | 71 | 122 | 84 | 855 | 458 | 197 | 453 | 60 | 40 | 136 | 41 |
| 25 | 66 | 68 | 129 | 95 | 801 | 585 | 187 | 791 | 57 | 47 | 136 | 41 |
| 26 | 72 | 66 | 173 | 85 | 1040 | 498 | 173 | 518 | 55 | 68 | 145 | 40 |
| 27 | 90 | 63 | 169 | 78 | 954 | 415 | 158 | 360 | 55 | 79 | 126 | 42 |
| 28 | 74 | 132 | 155 | 85 | 691 | 363 | 151 | 271 | 52 | 71 | 107 | 42 |
| 29 | 73 | 438 | 141 | 80 | --- | 322 | 144 | 224 | 50 | 62 | 94 | 41 |
| 30 | 80 | 263 | 131 | 75 | --- | 286 | 133 | 189 | 50 | 60 | 85 | 41 |
| 31 | 76 | --- | 143 | 99 | --- | 256 | --- | 159 | --- | 68 | 78 | --- |
| TOTAL | 1861 | 2675 | 3628 | 9287 | 15772 | 9043 | 6929 | 5851 | 3235 | 1902 | 5104 | 1471 |
| MEAN | 60.0 | 89.2 | 117 | 300 | 563 | 292 | 231 | 189 | 108 | 61.4 | 165 | 49.0 |
| MAX | 94 | 438 | 185 | 1500 | 2620 | 585 | 553 | 791 | 388 | 128 | 1010 | 75 |
| MIN | 46 | 53 | 87 | 75 | 167 | 158 | 133 | 86 | 50 | 40 | 44 | 40 |
| CFSM | .20 | .29 | .38 | .98 | 1.85 | .96 | .76 | .62 | .35 | .20 | .54 | .16 |
| IN. | .23 | .33 | .44 | 1.13 | 1.92 | 1.10 | .85 | .71 | .39 | .23 | .62 | .18 |

CAL YR 1984 TOTAL 130105 MEAN 355 MAX 4780 MIN 41 CFSM 1.16 IN. 15.87
WTR YR 1985 TOTAL 66758 MEAN 183 MAX 2620 MIN 40 CFSM .60 IN. 8.14

## 03175500 WOLF CREEK NEAR NARROWS, VA

LOCATION.--Lat 37°18'20", long 80°51'00", Giles County, Hydrologic Unit 05050002, on right bank at downstream side of bridge on State Highway 724, 2.8 mi southwest of Narrows, and at mile 3.5.

DRAINAGE AREA.--223 mi$^2$.

PERIOD OF RECORD.--July 1908 to September 1916, March 1938 to current year.

REVISED RECORDS.--WSP 973: 1940-41(M). WSP 1235: 1912-13, 1915-16. WSP 1505: 1940, monthly and yearly runoff. WSP 1725: 1913(M), 1915-16(M), 1941 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,583.83 ft above National Geodetic Vertical Datum of 1929. July 22, 1908, to Sept. 30, 1916, and Mar. 31 to Nov. 7, 1938, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Jan. 26-28. Records good. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 299 ft$^3$/s, 18.21 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft$^3$/s, Jan. 29, 1957, gage height, 12.55 ft, from floodmark in gage well, 13.8 ft, from floodmark at downstream side of bridge, from rating curve extended above 5,700 ft$^3$/s on basis of contracted-opening measurement of peak flow; minimum, 8.8 ft$^3$/s, Dec. 25, 1953, result of freezeup; minimum daily, 16 ft$^3$/s, Sept. 17, 18, 26-28, 1964; minimum gage height, 2.19 ft, Dec. 24, 1943.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,200 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 2130 | *3,400 | *7.79 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 31 ft$^3$/s, Oct. 17, gage height, 2.51 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 63 | 43 | 175 | 732 | 1370 | 607 | 302 | 120 | 164 | 52 | 92 | 94 |
| 2 | 72 | 40 | 144 | 761 | 2530 | 507 | 266 | 116 | 143 | 55 | 396 | 82 |
| 3 | 53 | 37 | 125 | 937 | 1410 | 417 | 251 | 128 | 144 | 55 | 259 | 75 |
| 4 | 43 | 36 | 110 | 1430 | 918 | 356 | 238 | 124 | 128 | 53 | 164 | 69 |
| 5 | 38 | 37 | 100 | 1410 | 686 | 324 | 219 | 110 | 143 | 54 | 124 | 64 |
| 6 | 36 | 44 | 105 | 898 | 604 | 285 | 237 | 102 | 165 | 51 | 107 | 61 |
| 7 | 34 | 45 | 94 | 668 | 508 | 245 | 236 | 96 | 147 | 46 | 105 | 59 |
| 8 | 33 | 43 | 81 | 522 | 387 | 228 | 266 | 90 | 138 | 43 | 154 | 58 |
| 9 | 35 | 40 | 103 | 411 | 310 | 316 | 276 | 86 | 123 | 39 | 177 | 61 |
| 10 | 36 | 39 | 106 | 339 | 300 | 333 | 274 | 84 | 109 | 38 | 136 | 59 |
| 11 | 37 | 58 | 124 | 297 | 282 | 329 | 274 | 84 | 198 | 46 | 111 | 56 |
| 12 | 36 | 99 | 171 | 254 | 345 | 358 | 277 | 86 | 180 | 56 | 95 | 55 |
| 13 | 35 | 77 | 164 | 211 | 287 | 336 | 267 | 84 | 190 | 60 | 82 | 52 |
| 14 | 34 | 59 | 148 | 200 | 238 | 315 | 253 | 80 | 161 | 135 | 73 | 50 |
| 15 | 33 | 50 | 132 | 189 | 237 | 292 | 245 | 79 | 135 | 86 | 66 | 46 |
| 16 | 34 | 48 | 121 | 140 | 203 | 258 | 377 | 144 | 129 | 65 | 95 | 44 |
| 17 | 33 | 45 | 113 | 185 | 204 | 242 | 377 | 227 | 129 | 58 | 128 | 42 |
| 18 | 34 | 43 | 106 | 167 | 174 | 227 | 329 | 264 | 110 | 49 | 924 | 40 |
| 19 | 34 | 86 | 105 | 152 | 191 | 206 | 297 | 286 | 97 | 44 | 823 | 39 |
| 20 | 33 | 211 | 118 | 125 | 216 | 189 | 269 | 230 | 88 | 42 | 462 | 38 |
| 21 | 32 | 148 | 129 | 95 | 301 | 176 | 247 | 185 | 82 | 48 | 315 | 37 |
| 22 | 34 | 111 | 146 | 104 | 468 | 185 | 224 | 160 | 74 | 48 | 234 | 36 |
| 23 | 36 | 92 | 178 | 131 | 765 | 312 | 204 | 340 | 68 | 47 | 187 | 35 |
| 24 | 38 | 81 | 181 | 111 | 1070 | 462 | 190 | 742 | 62 | 46 | 161 | 36 |
| 25 | 40 | 76 | 261 | 122 | 1210 | 643 | 181 | 968 | 58 | 53 | 187 | 36 |
| 26 | 52 | 69 | 366 | 105 | 1290 | 546 | 167 | 661 | 59 | 67 | 176 | 37 |
| 27 | 48 | 64 | 309 | 95 | 1030 | 463 | 154 | 464 | 52 | 85 | 144 | 39 |
| 28 | 43 | 112 | 259 | 100 | 766 | 401 | 150 | 346 | 49 | 84 | 123 | 39 |
| 29 | 49 | 317 | 220 | 103 | --- | 355 | 142 | 297 | 47 | 74 | 110 | 40 |
| 30 | 54 | 226 | 193 | 94 | --- | 307 | 129 | 233 | 45 | 72 | 98 | 36 |
| 31 | 49 | --- | 447 | 111 | --- | 271 | --- | 192 | --- | 77 | 99 | --- |
| TOTAL | 1261 | 2476 | 5134 | 11199 | 18300 | 10491 | 7318 | 7208 | 3417 | 1828 | 6407 | 1515 |
| MEAN | 40.7 | 82.5 | 166 | 361 | 654 | 338 | 244 | 233 | 114 | 59.0 | 207 | 50.5 |
| MAX | 72 | 317 | 447 | 1430 | 2530 | 643 | 377 | 968 | 198 | 135 | 924 | 94 |
| MIN | 32 | 36 | 81 | 94 | 174 | 176 | 129 | 79 | 45 | 38 | 66 | 35 |
| CFSM | .18 | .37 | .74 | 1.62 | 2.93 | 1.52 | 1.09 | 1.04 | .51 | .26 | .93 | .23 |
| IN. | .21 | .41 | .86 | 1.87 | 3.05 | 1.75 | 1.22 | 1.20 | .57 | .30 | 1.07 | .25 |

CAL YR 1984 TOTAL 119205 MEAN 326 MAX 4310 MIN 26 CFSM 1.46 IN. 19.89
WTR YR 1985 TOTAL 76554 MEAN 210 MAX 2530 MIN 32 CFSM .94 IN. 12.77

## 03176500 NEW RIVER AT GLEN LYN, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°22'22", long 80°51'39", Giles County, Hydrologic Unit 05050002, on right bank at upstream side of bridge on U.S. Highway 460 at Glen Lyn, 0.3 mi upstream from East River, and 6.3 mi downstream from Wolf Creek.

DRAINAGE AREA.--3,768 mi².

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to current year.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1305: 1928(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 1,490.24 ft above National Geodetic Vertical Datum of 1929. Aug. 11, 1927, to Oct. 16, 1934, on left bank just upstream from highway bridge at same datum, and Oct. 17, 1934, to June 16, 1939, on left bank 200 ft upstream from highway bridge at same datum.

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 17, Jan. 7-31, Feb. 13-18, May 27 to Aug. 16, and Sept. 2-30. Records fair. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years, 5,001 ft³/s, 18.02 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226,000 ft³/s, Aug. 14, 1940, gage height, 27.50 ft, from rating curve extended above 89,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 717 ft³/s, Jan. 5, 1981, result of freezeup; minimum daily, 820 ft³/s, Sept. 8, 1930; minimum gage height, 2.10 ft, Sept. 8, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,700 ft³/s, Aug. 19, gage height, 8.95 ft; minimum daily, 1,100 ft³/s, July 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1400 | 3200 | 5250 | 3970 | 4680 | 8050 | 1870 | 2570 | 4800 | 1400 | 2500 | 2130 |
| 2 | 4800 | 2600 | 2890 | 2800 | 19600 | 7500 | 2960 | 2400 | 2000 | 2200 | 4500 | 1500 |
| 3 | 4600 | 2400 | 1570 | 5730 | 16200 | 4930 | 2920 | 2370 | 1500 | 3000 | 5000 | 1450 |
| 4 | 3600 | 1300 | 2480 | 12300 | 9510 | 2170 | 4540 | 3460 | 1450 | 3200 | 1800 | 2200 |
| 5 | 3900 | 1300 | 2710 | 13000 | 8120 | 5080 | 5190 | 1550 | 1400 | 1400 | 2800 | 2400 |
| 6 | 1500 | 2400 | 3240 | 7780 | 5900 | 5310 | 4000 | 1360 | 2400 | 1800 | 2700 | 2500 |
| 7 | 1200 | 2500 | 3470 | 5000 | 6390 | 4940 | 1860 | 2860 | 2500 | 1350 | 2300 | 2400 |
| 8 | 1300 | 2500 | 1530 | 8000 | 4870 | 4520 | 1650 | 2710 | 3700 | 1300 | 1700 | 1500 |
| 9 | 1700 | 2400 | 1380 | 6000 | 4020 | 3100 | 4920 | 2170 | 1700 | 1900 | 2100 | 1400 |
| 10 | 1900 | 2000 | 1410 | 5400 | 1880 | 1970 | 4470 | 2260 | 1600 | 2100 | 2500 | 2100 |
| 11 | 1600 | 1400 | 2410 | 4900 | 1770 | 1990 | 4620 | 2070 | 3000 | 1500 | 1500 | 2200 |
| 12 | 1400 | 1300 | 2250 | 3000 | 5570 | 6150 | 3650 | 1310 | 3300 | 1600 | 1300 | 2400 |
| 13 | 1500 | 4000 | 3810 | 1800 | 12000 | 3780 | 4030 | 1290 | 3500 | 2400 | 2800 | 2400 |
| 14 | 1250 | 3500 | 3020 | 1700 | 6500 | 4520 | 1710 | 2480 | 3000 | 1700 | 2500 | 1400 |
| 15 | 1350 | 2600 | 3060 | 3200 | 3600 | 3190 | 1630 | 2980 | 2600 | 3000 | 1300 | 1400 |
| 16 | 1400 | 2500 | 1460 | 2200 | 3400 | 3090 | 3270 | 2830 | 1500 | 3100 | 1700 | 1300 |
| 17 | 1800 | 2700 | 1400 | 2400 | 1600 | 1720 | 6040 | 4350 | 1400 | 2700 | 2830 | 1250 |
| 18 | 2400 | 1340 | 2450 | 2300 | 1550 | 1530 | 5240 | 5790 | 2600 | 2600 | 13100 | 1500 |
| 19 | 2300 | 1210 | 2550 | 2200 | 3660 | 2620 | 6290 | 3650 | 2400 | 1800 | 20500 | 1350 |
| 20 | 2200 | 2880 | 3740 | 1500 | 4410 | 2650 | 5330 | 1810 | 2500 | 1300 | 12100 | 1400 |
| 21 | 1400 | 2980 | 4180 | 1400 | 4500 | 2360 | 2020 | 3160 | 2300 | 1200 | 8420 | 1350 |
| 22 | 1300 | 2530 | 3180 | 4500 | 5300 | 2700 | 1690 | 2890 | 1400 | 1150 | 6420 | 1350 |
| 23 | 2500 | 1350 | 1640 | 2000 | 5790 | 3300 | 3610 | 2890 | 1300 | 1100 | 4710 | 1300 |
| 24 | 2400 | 1340 | 1670 | 1400 | 5570 | 5670 | 3080 | 7240 | 1250 | 1400 | 3510 | 1200 |
| 25 | 2700 | 1310 | 2870 | 1300 | 7260 | 3820 | 3330 | 9770 | 1300 | 2000 | 2970 | 1300 |
| 26 | 4000 | 1240 | 1820 | 1400 | 12200 | 7160 | 3980 | 7740 | 1500 | 5600 | 2400 | 1300 |
| 27 | 3900 | 2040 | 4810 | 1300 | 9700 | 6160 | 5520 | 4500 | 1800 | 1600 | 3830 | 1400 |
| 28 | 1500 | 3110 | 3700 | 1350 | 8880 | 5210 | 1770 | 7000 | 1900 | 9000 | 6200 | 1900 |
| 29 | 1400 | 10900 | 4320 | 2300 | --- | 5530 | 1520 | 5600 | 1300 | 1700 | 4800 | 1400 |
| 30 | 3000 | 9450 | 1660 | 2500 | --- | 4030 | 2840 | 5000 | 1250 | 1600 | 5020 | 1200 |
| 31 | 3500 | --- | 1790 | 2950 | --- | 1920 | --- | 4500 | --- | 1700 | 4190 | --- |
| TOTAL | 70700 | 82280 | 83720 | 117580 | 184430 | 126670 | 105550 | 112560 | 64150 | 69400 | 140000 | 49880 |
| MEAN | 2281 | 2743 | 2701 | 3793 | 6587 | 4086 | 3518 | 3631 | 2138 | 2239 | 4516 | 1663 |
| MAX | 4800 | 10900 | 5250 | 13000 | 19600 | 8050 | 6290 | 9770 | 4800 | 9000 | 20500 | 2500 |
| MIN | 1200 | 1210 | 1380 | 1300 | 1550 | 1530 | 1520 | 1290 | 1250 | 1100 | 1300 | 1200 |
| (*) | -75 | -97 | +120 | -10 | -22 | +36 | +27 | -127 | +150 | -21 | -96 | +118 |
| MEAN† | 2206 | 2646 | 2821 | 3783 | 6565 | 4122 | 3545 | 3504 | 2288 | 2218 | 4420 | 1781 |
| CFSM† | .59 | .70 | .75 | 1.00 | 1.74 | 1.09 | .94 | .93 | .61 | .59 | 1.17 | .47 |
| IN.† | .68 | .78 | .86 | 1.16 | 1.81 | 1.26 | 1.05 | 1.07 | .68 | .68 | 1.35 | .53 |

CAL YR 1984 TOTAL 2152620 MEAN 5881 MAX 41200 MIN 1200 MEAN† 5889 CFSM† 1.56 IN.† 21.28
WTR YR 1985 TOTAL 1206920 MEAN 3307 MAX 20500 MIN 1100 MEAN† 3307 CFSM† .88 IN.† 11.92

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; provided by Appalachian Power Company.

† Adjusted for change in contents.

## 03176500 NEW RIVER AT GLEN LYN, VA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1955-56, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURE: October 1964 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 350 microsiemens, Nov. 6, 1968; minimum, 70 microsiemens, Mar. 26, 27, 1979.
WATER TEMPERATURE: Maximum, 30.5°C, June 24, 1983; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 260 microsiemens, Jan. 22; minimum daily, 116 microsiemens, Aug. 20.
WATER TEMPERATURE: Maximum daily, 29.0°C, Aug. 14; minimum, 2.5°C on several days in January and February.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTANTANEOUS (CFS) | SPECIFIC CONDUCTANCE (US/CM) | SPECIFIC CONDUCTANCE LAB (US/CM) | PH (STANDARD UNITS) | PH LAB (STANDARD UNITS) | TEMPERATURE (DEG C) | BAROMETRIC PRESSURE (MM OF HG) | TURBIDITY (NTU) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV<br>28... | 10:45 | 4120 | -- | 182 | 7.8 | 7.8 | 10.5 | 721 | 4.0 | 9.9 | -- |
| JAN<br>29... | 09:05 | 2300 | 220 | 203 | 7.6 | 7.6 | 1.0 | 724 | 2.0 | 14.2 | 105 |
| MAR<br>20... | 08:30 | 3150 | 185 | 174 | 7.9 | 7.2 | 7.0 | 726 | 1.5 | 11.6 | 100 |
| MAY<br>29... | 09:00 | 5600 | 140 | 134 | 7.4 | 7.4 | 18.0 | 722 | 1.1 | 8.0 | 89 |
| JUL<br>23... | 08:30 | 1100 | 190 | 200 | 7.7 | 7.8 | 22.0 | 723 | 1.0 | 6.4 | 77 |
| SEP<br>04... | 08:30 | 2200 | 180 | 182 | 7.7 | 7.6 | 24.5 | 728 | 1.0 | 8.6 | 108 |

| DATE | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) | HARDNESS NONCARBONATE (MG/L AS CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY LAB (MG/L AS CACO3) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV<br>28... | 49 | K35 | 83 | 83 | 19 | 8.6 | 4.7 | 1.5 | 59 | 80 | 24 |
| JAN<br>29... | 48 | 56 | 89 | 89 | 22 | 8.2 | 6.3 | 1.6 | 64 | 64 | 21 |
| MAR<br>20... | K3 | 37 | 74 | 74 | 19 | 6.4 | 4.1 | 1.3 | 56 | 51 | 15 |
| MAY<br>29... | 440 | 1200 | 56 | 56 | 13 | 5.6 | 3.7 | 1.4 | 46 | 37 | 14 |
| JUL<br>23... | 45 | 270 | 85 | 85 | 19 | 9.2 | 5.3 | 1.7 | 61 | 57 | 24 |
| SEP<br>04... | 63 | 220 | 81 | 81 | 19 | 8.2 | 4.0 | 1.8 | 60 | 53 | 19 |

## 03176500 NEW RIVER AT GLEN LYN, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 28... | 4.5 | <0.1 | 5.9 | 113 | 120 | 1.60 | <0.01 | 1.6 | 0.07 | 0.05 | 0.03 |
| JAN 29... | 7.6 | <0.1 | 6.9 | 150 | 110 | 1.90 | 0.08 | 0.2 | 0.07 | 0.07 | 0.06 |
| MAR 20... | 5.9 | 0.1 | 2.9 | 107 | 86 | 1.60 | 0.03 | 0.5 | 0.05 | 0.03 | 0.02 |
| MAY 29... | 4.2 | 0.1 | 6.3 | 93 | 71 | 0.48 | 0.09 | 0.7 | 0.03 | 0.02 | 0.03 |
| JUL 23... | 5.1 | 0.1 | 6.7 | 115 | 110 | 1.20 | 0.04 | 0.5 | 0.10 | 0.10 | 0.08 |
| SEP 04... | 5.9 | <0.1 | 6.2 | 111 | 96 | 0.98 | 0.06 | 0.3 | 0.07 | 0.07 | 0.04 |

| DATE | ALUMINUM, DISSOLVED (UG/L AS AL) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | BERYLLIUM, DISSOLVED (UG/L AS BE) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) | LEAD, DISSOLVED (UG/L AS PB) | LITHIUM DISSOLVED (UG/L AS LI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 28... | 20 | <1 | 27 | <0.5 | <1 | <1 | <3 | 2 | 23 | 5 | 6 |
| JAN 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 20... | 20 | <1 | 31 | <0.5 | <1 | <1 | <3 | 8 | 45 | <1 | 14 |
| MAY 29... | 10 | 1 | 27 | <0.5 | <1 | 3 | <3 | 7 | 25 | 1 | <4 |
| JUL 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 04... | 30 | <1 | 32 | <0.5 | <1 | <1 | <3 | 4 | 31 | 1 | 10 |

| DATE | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | MOLYBDENUM, DISSOLVED (UG/L AS MO) | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | STRONTIUM, DISSOLVED (UG/L AS SR) | VANADIUM, DISSOLVED (UG/L AS V) | ZINC, DISSOLVED (UG/L AS ZN) | SEDIMENT, SUSPENDED (MG/L) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 28... | 2 | <0.1 | <10 | <1 | <1 | <1 | 97 | <6 | 13 | 6 | 78 |
| JAN 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 7 | 79 |
| MAR 20... | 14 | 0.1 | <10 | 3 | <1 | <1 | 81 | <6 | 7 | 8 | 78 |
| MAY 29... | 9 | <0.1 | <10 | 1 | <1 | <1 | 58 | <6 | 20 | 15 | 86 |
| JUL 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5 | 87 |
| SEP 04... | 9 | <0.1 | <10 | 1 | <1 | <1 | 84 | <6 | 4 | 6 | 85 |

## 03176500 NEW RIVER AT GLEN LYN, VA--Continued

### SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 218 | 178 | 136 | 162 | 176 | 130 | 160 | 188 | 150 | 210 | 180 | 152 |
| 2 | 200 | 180 | 150 | 170 | 120 | 140 | 180 | 170 | 160 | 200 | 160 | 158 |
| 3 | 155 | 170 | 162 | 136 | 120 | 140 | 178 | 170 | 160 | 170 | 160 | 170 |
| 4 | 160 | 178 | 190 | 139 | 122 | 158 | --- | 170 | 165 | 170 | 160 | 184 |
| 5 | 179 | 200 | 180 | 124 | 138 | 160 | 140 | 182 | 195 | 180 | --- | 188 |
| 6 | 180 | 182 | 170 | 130 | 140 | 145 | 142 | 170 | 200 | 180 | --- | 160 |
| 7 | 190 | 180 | 170 | 138 | 150 | --- | 160 | --- | 200 | 165 | 185 | 157 |
| 8 | 200 | 180 | 180 | 155 | 142 | 140 | 162 | 162 | 178 | 180 | --- | 170 |
| 9 | 218 | 170 | 180 | 144 | 158 | 150 | 184 | 162 | 178 | 190 | 178 | 180 |
| 10 | 200 | 175 | 180 | 155 | 170 | 162 | 150 | 165 | 175 | 180 | 170 | 180 |
| 11 | 230 | 180 | 190 | 160 | 178 | 165 | 140 | 179 | 165 | 200 | 182 | 190 |
| 12 | 222 | 198 | 210 | 159 | 190 | 175 | 140 | 179 | 185 | 184 | 190 | 185 |
| 13 | 220 | --- | 180 | 180 | 140 | 138 | 162 | 196 | 150 | 190 | 184 | 168 |
| 14 | 220 | --- | 170 | 190 | 150 | 142 | 162 | 178 | 165 | 180 | 183 | 166 |
| 15 | 220 | 179 | 180 | 190 | 150 | 142 | 160 | 180 | 155 | 180 | 163 | 192 |
| 16 | 230 | 170 | 165 | 210 | 198 | 170 | 175 | 170 | 160 | 175 | 168 | 185 |
| 17 | --- | 185 | 178 | 180 | 200 | 178 | 150 | 170 | 181 | 176 | 170 | 203 |
| 18 | 210 | 180 | 180 | 200 | 180 | 170 | 140 | 145 | 180 | 180 | 143 | 204 |
| 19 | 200 | 198 | 198 | 200 | 190 | 178 | 135 | --- | 170 | 178 | 125 | 204 |
| 20 | 190 | 195 | 162 | 200 | 162 | 165 | 130 | --- | 172 | 176 | 116 | 203 |
| 21 | 200 | 198 | 158 | 220 | 162 | 160 | 142 | 150 | 172 | 182 | --- | 218 |
| 22 | 220 | 170 | 150 | 260 | 150 | 160 | 155 | 165 | 190 | 200 | 135 | 216 |
| 23 | 210 | --- | 162 | 200 | 140 | 160 | 175 | 170 | 190 | 204 | 138 | 213 |
| 24 | 184 | 190 | 175 | 180 | 132 | 162 | 162 | 120 | 192 | 218 | 160 | 220 |
| 25 | 180 | 195 | 180 | 210 | 120 | 140 | 150 | 120 | 192 | 225 | 165 | 222 |
| 26 | 160 | 200 | 190 | 205 | 120 | 144 | 155 | 120 | 200 | 176 | 160 | 222 |
| 27 | 160 | 198 | 158 | 240 | 120 | 130 | --- | 122 | 218 | 160 | 140 | 225 |
| 28 | 180 | 198 | 140 | 238 | 122 | 130 | --- | 138 | 218 | 160 | 178 | 220 |
| 29 | 199 | 140 | 142 | 210 | --- | 140 | 161 | 140 | 218 | 140 | 127 | 219 |
| 30 | 182 | 130 | 160 | 220 | --- | 140 | 182 | --- | 210 | 160 | 123 | 238 |
| 31 | 182 | --- | 160 | 179 | --- | 160 | --- | --- | --- | 180 | 133 | --- |
| MEAN | 197 | 181 | 171 | 183 | 151 | 152 | 157 | 161 | 181 | 182 | 158 | 194 |

WTR YR 1985 MEAN 173 MAX 260 MIN 116

### TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15.5 | 19.5 | 10.0 | 11.0 | 4.0 | 7.0 | 15.0 | 18.0 | 19.5 | 24.0 | 26.0 | 24.0 |
| 2 | 15.0 | 18.5 | 8.0 | 12.0 | 5.0 | 7.0 | 13.0 | 18.5 | 22.0 | 23.0 | 25.0 | 23.0 |
| 3 | 16.5 | 16.0 | 9.5 | 11.0 | 4.0 | 7.5 | 12.0 | 17.0 | 22.0 | 23.0 | 24.0 | 24.0 |
| 4 | 17.5 | 14.5 | 7.0 | 9.0 | 4.5 | 9.5 | 12.5 | 16.5 | 24.0 | 24.0 | 23.5 | 25.0 |
| 5 | 18.5 | 14.5 | 8.0 | 8.0 | 4.5 | 10.0 | 13.0 | 15.5 | 25.0 | 24.5 | 23.5 | 25.0 |
| 6 | 19.5 | 14.0 | 5.0 | 7.0 | 5.0 | 9.0 | 14.0 | 18.5 | 25.0 | 25.0 | 24.0 | 26.0 |
| 7 | 18.5 | 13.0 | 4.5 | 7.0 | 5.5 | 8.0 | 13.0 | 19.0 | 24.5 | 25.0 | 24.0 | 26.0 |
| 8 | 19.0 | 12.5 | 5.0 | 7.0 | 3.5 | 9.0 | 11.0 | 18.0 | 24.0 | 24.0 | 24.5 | 26.0 |
| 9 | 19.0 | 12.5 | 5.0 | 5.5 | 2.5 | 9.0 | 9.5 | 18.5 | 24.0 | 26.0 | 25.0 | 27.0 |
| 10 | 20.0 | 13.0 | 5.5 | 6.0 | 2.5 | 9.0 | 8.5 | 18.5 | 24.0 | 26.0 | 25.0 | 27.0 |
| 11 | 20.5 | 13.5 | 7.0 | 5.5 | 4.0 | 9.5 | 10.0 | 19.0 | 26.0 | 25.0 | 26.0 | 26.0 |
| 12 | 19.0 | 12.5 | 7.5 | 4.0 | 4.5 | 10.0 | 13.5 | 20.0 | 25.0 | 27.0 | 27.0 | 25.0 |
| 13 | 19.0 | 10.5 | 8.0 | 3.0 | 4.0 | 9.0 | 14.0 | 21.0 | 22.0 | 26.0 | 28.0 | 23.0 |
| 14 | 18.5 | 9.5 | 9.5 | 3.0 | 4.0 | 9.0 | 14.5 | --- | 20.0 | 25.0 | 29.0 | 20.0 |
| 15 | 19.0 | 10.0 | 9.5 | 4.0 | 4.0 | 9.5 | 17.0 | 22.0 | 20.0 | 26.0 | 28.0 | 20.0 |
| 16 | 20.0 | 11.5 | 10.0 | 2.5 | 4.0 | 9.5 | 16.0 | 22.5 | 22.0 | 26.0 | 27.0 | 20.0 |
| 17 | 19.0 | 10.0 | 10.5 | 4.0 | 4.5 | 10.0 | 16.5 | 21.0 | 22.0 | 26.5 | 26.0 | 20.0 |
| 18 | 21.5 | 9.5 | 11.0 | 4.0 | 7.0 | 11.0 | 15.0 | 18.5 | 24.0 | 27.0 | 23.0 | 21.0 |
| 19 | 21.0 | 9.0 | 11.0 | 4.0 | 7.0 | 8.5 | 17.5 | 19.0 | 24.0 | 27.0 | 23.0 | 26.0 |
| 20 | 21.5 | 8.0 | 11.5 | 3.0 | 6.0 | 10.5 | 17.0 | 18.5 | 22.5 | 27.0 | 24.0 | 22.0 |
| 21 | 21.5 | 7.0 | 11.5 | 2.5 | 6.5 | 10.5 | 17.0 | 19.5 | 24.0 | 27.0 | 23.5 | 22.0 |
| 22 | 22.0 | 6.0 | 11.0 | 3.0 | 7.0 | 9.5 | 18.0 | 19.5 | 24.0 | 27.0 | 22.0 | 23.0 |
| 23 | 21.5 | 6.0 | 8.0 | 3.5 | 7.0 | 9.0 | 20.0 | 20.0 | 24.5 | 27.0 | 22.0 | 22.0 |
| 24 | 21.0 | 5.5 | 7.0 | 5.0 | 8.0 | 9.0 | 19.5 | 19.5 | 25.0 | 26.0 | 22.0 | 23.0 |
| 25 | 21.0 | 5.0 | 7.5 | 5.0 | 9.5 | 10.0 | 18.0 | 19.0 | 27.0 | 25.0 | 22.0 | 21.5 |
| 26 | 20.5 | 6.5 | 6.0 | 3.5 | 9.0 | 10.0 | 17.5 | 16.5 | 27.0 | 24.0 | 22.0 | 22.0 |
| 27 | 21.0 | 8.5 | 7.0 | 3.5 | 8.5 | 12.0 | 17.0 | 17.0 | 25.0 | 24.0 | 24.0 | 21.0 |
| 28 | 20.5 | 11.5 | 8.5 | 5.5 | 8.0 | 14.0 | 16.5 | 18.5 | 26.0 | 24.0 | 23.0 | 20.0 |
| 29 | 21.0 | 10.0 | 9.0 | 3.0 | --- | 15.0 | 17.5 | 20.0 | 23.0 | 24.0 | 25.0 | 19.0 |
| 30 | 20.5 | 9.0 | 10.0 | 2.5 | --- | 15.0 | 18.0 | 20.0 | 25.0 | 25.0 | 25.0 | 19.0 |
| 31 | 19.5 | --- | 10.5 | 3.5 | --- | 17.0 | --- | 20.0 | --- | 26.0 | 23.0 | --- |
| MEAN | 19.5 | 11.0 | 8.5 | 5.0 | 5.5 | 10.0 | 15.0 | 19.0 | 23.5 | 25.5 | 24.5 | 23.0 |

WTR YR 1985 MEAN 16.0 MAX 29.0 MIN 2.5

## 03177710 BLUESTONE RIVER AT FALLS MILLS, VA

**LOCATION.**--Lat 37°16'17", long 81°18'18", Tazewell County, Hydrologic Unit 05050002, on right bank at upstream side of bridge on State Highway 717, 0.3 mi upstream from Brush Fork, and 0.4 mi southeast of Falls Mills.

**DRAINAGE AREA.**--44.2 mi$^2$.

**PERIOD OF RECORD.**--October 1980 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 2,310.41 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 16, 21-30. Records good. Some diurnal fluctuation caused by discharge from sewage treatment plant 2.3 mi upstream. About sixty-five percent of water discharged from the treatment plant was diverted from another drainage basin for municipal supply. Several measurements of water temperature were made during the year.

**AVERAGE DISCHARGE.**--5 years, 59.3 ft$^3$/s, 18.22 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 1,050 ft$^3$/s, May 7, 1984, gage height, 8.37 ft, from rating curve extended above 670 ft$^3$/s; minimum, 1.0 ft$^3$/s, Jan. 18, 1981, gage height, 0.92 ft, result of freezeup; minimum daily, 3.9 ft$^3$/s, Jan. 19, 1981.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 450 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 1600 | *749 | *6.33 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 7.3 ft$^3$/s, Sept. 19, gage height, 1.02 ft; minimum daily, 9.2 ft$^3$/s, Aug. 15.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 11 | 29 | 82 | 498 | 111 | 54 | 26 | 36 | 18 | 105 | 20 |
| 2 | 18 | 12 | 25 | 216 | 391 | 91 | 48 | 28 | 38 | 18 | 90 | 19 |
| 3 | 15 | 11 | 23 | 203 | 245 | 77 | 46 | 39 | 31 | 18 | 46 | 19 |
| 4 | 15 | 12 | 20 | 277 | 166 | 65 | 47 | 28 | 40 | 39 | 30 | 18 |
| 5 | 15 | 17 | 20 | 226 | 126 | 68 | 48 | 25 | 81 | 30 | 23 | 17 |
| 6 | 15 | 18 | 25 | 151 | 131 | 55 | 61 | 25 | 71 | 19 | 23 | 18 |
| 7 | 15 | 14 | 21 | 115 | 110 | 49 | 54 | 23 | 47 | 18 | 32 | 18 |
| 8 | 15 | 12 | 20 | 89 | 90 | 56 | 56 | 22 | 37 | 16 | 61 | 17 |
| 9 | 16 | 12 | 19 | 70 | 74 | 63 | 57 | 22 | 30 | 15 | 30 | 17 |
| 10 | 17 | 13 | 24 | 58 | 67 | 56 | 54 | 23 | 29 | 32 | 22 | 17 |
| 11 | 15 | 41 | 27 | 53 | 59 | 68 | 54 | 23 | 37 | 30 | 18 | 17 |
| 12 | 15 | 21 | 26 | 45 | 91 | 65 | 50 | 23 | 51 | 19 | 15 | 16 |
| 13 | 15 | 16 | 24 | 40 | 71 | 59 | 48 | 23 | 38 | 31 | 12 | 16 |
| 14 | 15 | 15 | 21 | 38 | 61 | 57 | 47 | 21 | 30 | 34 | 11 | 16 |
| 15 | 15 | 14 | 20 | 35 | 54 | 52 | 48 | 30 | 27 | 31 | 9.2 | 15 |
| 16 | 15 | 13 | 19 | 28 | 50 | 46 | 69 | 83 | 29 | 29 | 37 | 15 |
| 17 | 13 | 15 | 19 | 32 | 46 | 44 | 53 | 60 | 26 | 20 | 61 | 15 |
| 18 | 12 | 16 | 19 | 30 | 44 | 41 | 50 | 62 | 24 | 18 | 247 | 14 |
| 19 | 12 | 96 | 25 | 28 | 47 | 38 | 48 | 61 | 20 | 16 | 117 | 14 |
| 20 | 12 | 38 | 30 | 26 | 58 | 37 | 46 | 44 | 20 | 14 | 75 | 14 |
| 21 | 12 | 27 | 31 | 20 | 93 | 35 | 42 | 36 | 19 | 15 | 56 | 13 |
| 22 | 16 | 23 | 38 | 23 | 148 | 47 | 41 | 42 | 17 | 17 | 45 | 13 |
| 23 | 16 | 19 | 34 | 25 | 200 | 53 | 38 | 130 | 17 | 13 | 39 | 15 |
| 24 | 15 | 18 | 33 | 22 | 219 | 71 | 37 | 235 | 15 | 12 | 39 | 16 |
| 25 | 13 | 17 | 114 | 23 | 210 | 82 | 35 | 208 | 17 | 15 | 39 | 18 |
| 26 | 13 | 17 | 62 | 22 | 231 | 66 | 33 | 122 | 15 | 34 | 32 | 20 |
| 27 | 11 | 16 | 51 | 20 | 189 | 60 | 31 | 81 | 15 | 35 | 27 | 20 |
| 28 | 16 | 77 | 44 | 22 | 142 | 56 | 32 | 68 | 14 | 21 | 25 | 16 |
| 29 | 16 | 47 | 38 | 21 | --- | 53 | 30 | 58 | 15 | 18 | 23 | 15 |
| 30 | 14 | 33 | 39 | 19 | --- | 48 | 27 | 48 | 15 | 15 | 23 | 16 |
| 31 | 12 | --- | 106 | 72 | --- | 55 | --- | 41 | --- | 28 | 24 | --- |
| TOTAL | 466 | 711 | 1046 | 2131 | 3911 | 1824 | 1384 | 1760 | 901 | 688 | 1436.2 | 494 |
| MEAN | 15.0 | 23.7 | 33.7 | 68.7 | 140 | 58.8 | 46.1 | 56.8 | 30.0 | 22.2 | 46.3 | 16.5 |
| MAX | 32 | 96 | 114 | 277 | 498 | 111 | 69 | 235 | 81 | 39 | 247 | 20 |
| MIN | 11 | 11 | 19 | 19 | 44 | 35 | 27 | 21 | 14 | 12 | 9.2 | 13 |
| (*) | 5.33 | 5.58 | 6.06 | 4.38 | 4.47 | 4.29 | 4.48 | 4.22 | 4.26 | 4.05 | 4.56 | 3.59 |

CAL YR 1984 TOTAL 25011.0 MEAN 68.3 MAX 840 MIN 8.0 * 5.95
WTR YR 1985 TOTAL 16752.2 MEAN 45.9 MAX 498 MIN 9.2 * 4.61

* Discharge from sewage treatment plant, equivalent in cubic feet per second; provided by the Sanitary Board of Bluefield.

## 03207800 LEVISA FORK AT BIG ROCK, VA

LOCATION.--Lat 37°21'13", long 82°11'45", Buchanan County, Hydrologic Unit 05070202, on left bank at Big Rock, 2,000 ft downstream from Rocklick Creek, and 2,500 ft downstream from bridge on State Highway 645.

DRAINAGE AREA.--297 mi$^2$.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 866.37 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 7, 8, 22-24. Records good. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--18 years, 378 ft$^3$/s, 17.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,000 ft$^3$/s, Apr. 4, 1977, gage height, 27.38 ft, from rating curve extended above 7,000 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 5.0 ft$^3$/s, Oct. 1, 13, 14, 17, 18, 19, 20, 1969; minimum gage height, 3.17 ft, Sept. 25, 26, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 23.0 ft, information from local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 4,500 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 1400 | *7,100 | *10.41 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 19 ft$^3$/s, Sept. 21, 30, gage height, 3.19 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 77 | 49 | 271 | 697 | 4150 | 458 | 356 | 118 | 131 | 117 | 955 | 57 |
| 2 | 60 | 50 | 198 | 1090 | 2320 | 410 | 327 | 120 | 121 | 85 | 1030 | 46 |
| 3 | 41 | 49 | 171 | 795 | 1040 | 353 | 313 | 298 | 127 | 76 | 360 | 41 |
| 4 | 32 | 47 | 144 | 984 | 698 | 317 | 291 | 271 | 113 | 106 | 205 | 38 |
| 5 | 27 | 79 | 128 | 868 | 623 | 300 | 263 | 226 | 217 | 80 | 144 | 37 |
| 6 | 24 | 118 | 177 | 640 | 1140 | 259 | 306 | 187 | 654 | 67 | 119 | 41 |
| 7 | 25 | 95 | 165 | 510 | 1140 | 233 | 261 | 160 | 308 | 63 | 149 | 45 |
| 8 | 30 | 77 | 170 | 440 | 796 | 252 | 269 | 140 | 227 | 70 | 141 | 39 |
| 9 | 85 | 78 | 163 | 353 | 612 | 368 | 265 | 122 | 172 | 53 | 110 | 35 |
| 10 | 76 | 78 | 177 | 302 | 517 | 333 | 250 | 110 | 141 | 57 | 93 | 44 |
| 11 | 46 | 87 | 172 | 286 | 460 | 343 | 246 | 106 | 196 | 97 | 78 | 62 |
| 12 | 35 | 109 | 169 | 246 | 518 | 361 | 240 | 102 | 271 | 66 | 70 | 40 |
| 13 | 30 | 89 | 158 | 212 | 444 | 328 | 232 | 94 | 245 | 51 | 63 | 32 |
| 14 | 27 | 75 | 142 | 214 | 381 | 317 | 227 | 89 | 182 | 66 | 60 | 28 |
| 15 | 28 | 68 | 132 | 201 | 349 | 297 | 226 | 100 | 145 | 54 | 53 | 27 |
| 16 | 27 | 71 | 126 | 164 | 311 | 273 | 232 | 168 | 127 | 75 | 54 | 26 |
| 17 | 28 | 62 | 121 | 200 | 333 | 262 | 209 | 211 | 166 | 51 | 97 | 23 |
| 18 | 26 | 90 | 148 | 180 | 315 | 245 | 182 | 261 | 153 | 42 | 103 | 22 |
| 19 | 25 | 1650 | 340 | 171 | 409 | 219 | 173 | 215 | 120 | 37 | 80 | 21 |
| 20 | 70 | 655 | 470 | 126 | 517 | 204 | 168 | 158 | 120 | 35 | 65 | 20 |
| 21 | 88 | 305 | 526 | 81 | 694 | 198 | 164 | 148 | 101 | 36 | 66 | 19 |
| 22 | 71 | 201 | 510 | 130 | 995 | 239 | 157 | 140 | 87 | 44 | 59 | 20 |
| 23 | 166 | 154 | 420 | 150 | 1540 | 284 | 149 | 194 | 81 | 43 | 49 | 21 |
| 24 | 306 | 127 | 430 | 140 | 1260 | 391 | 144 | 709 | 77 | 36 | 48 | 21 |
| 25 | 139 | 112 | 414 | 154 | 891 | 508 | 144 | 850 | 70 | 34 | 76 | 21 |
| 26 | 92 | 100 | 391 | 135 | 753 | 458 | 131 | 535 | 65 | 103 | 70 | 23 |
| 27 | 72 | 89 | 332 | 116 | 627 | 400 | 131 | 340 | 60 | 649 | 60 | 22 |
| 28 | 63 | 425 | 280 | 128 | 524 | 362 | 151 | 244 | 56 | 270 | 52 | 21 |
| 29 | 64 | 634 | 242 | 125 | --- | 326 | 164 | 214 | 53 | 218 | 44 | 21 |
| 30 | 61 | 376 | 271 | 116 | --- | 293 | 129 | 173 | 65 | 114 | 51 | 20 |
| 31 | 55 | --- | 375 | 295 | --- | 285 | --- | 145 | --- | 101 | 75 | --- |
| TOTAL | 1996 | 6199 | 7933 | 10249 | 24357 | 9876 | 6500 | 6948 | 4651 | 2996 | 4679 | 933 |
| MEAN | 64.4 | 207 | 256 | 331 | 870 | 319 | 217 | 224 | 155 | 96.6 | 151 | 31.1 |
| MAX | 306 | 1650 | 526 | 1090 | 4150 | 508 | 356 | 850 | 654 | 649 | 1030 | 62 |
| MIN | 24 | 47 | 121 | 81 | 311 | 198 | 129 | 89 | 53 | 34 | 44 | 19 |
| CFSM | .22 | .70 | .86 | 1.11 | 2.93 | 1.07 | .73 | .75 | .52 | .33 | .51 | .10 |
| IN. | .25 | .78 | .99 | 1.28 | 3.05 | 1.24 | .81 | .87 | .58 | .38 | .59 | .12 |

CAL YR 1984 TOTAL 139534 MEAN 381 MAX 16300 MIN 18 CFSM 1.28 IN. 17.48
WTR YR 1985 TOTAL 87317 MEAN 239 MAX 4150 MIN 19 CFSM .80 IN. 10.94

## 03208000 LEVISA FORK BELOW FISHTRAP DAM, NEAR MILLARD, KY

**LOCATION.**--Lat 37°25'33", long 82°24'45", Pike County, Hydrologic Unit 05070202, on right bank, 0.4 mi downstream from Fishtrap Dam, 1.1 mi upstream from Lower Pompey Branch, 1.9 mi northeast of Millard, 2.4 mi upstream from confluence with Russell Fork, and at mile 129.6.

**DRAINAGE AREA.**--392 mi².

**PERIOD OF RECORD.**--February 1938 to current year. Prior to April 1968, published as "Levisa Fork at Fishtrap."

**REVISED RECORDS.**--WSP 953. Drainage area. WSP 1335: 1938(M), 1939, 1940(M), 1942-43, 1944-45(M), 1946, 1948.

**GAGE.**--Water-stage recorder. Datum of gage is 600.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 19, 1968, nonrecording gage at site 3.7 mi upstream at different datum. Apr. 19, 1968, to June 18, 1973, water-stage recorder at site 1.0 mi downstream at datum 59.96 ft higher.

**REMARKS.**--No estimated daily discharges. Records good. Flow regulated by Fishtrap Lake beginning October 1968. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--47 years, 476 ft³/s, 16.49 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 33,000 ft³/s, Jan. 29, 1957, gage height, 33.9 ft, from floodmark, site and datum then in use, from rating curve extended above 15,000 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 107.55 ft, Apr. 5, 1977, from floodmark, backwater from Russell Fork; no flow Apr. 5, 1977, all gates on Fishtrap Dam closed; minimum observed discharge prior to Fishtrap Lake, 0.1 ft³/s, Nov. 8, 9, 1939, site then in use.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 5,660 ft³/s, Feb. 1, gage height, 81.36 ft; minimum daily, 45 ft³/s, Apr. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 192 | 268 | 466 | 489 | 2860 | 770 | 159 | 53 | 113 | 67 | 689 | 74 |
| 2 | 215 | 220 | 299 | 837 | 4100 | 697 | 45 | 53 | 158 | 68 | 1810 | 74 |
| 3 | 216 | 238 | 247 | 1620 | 2420 | 538 | 56 | 54 | 203 | 264 | 999 | 74 |
| 4 | 217 | 215 | 158 | 1400 | 2090 | 485 | 57 | 55 | 201 | 68 | 237 | 74 |
| 5 | 217 | 302 | 156 | 1630 | 1470 | 416 | 58 | 55 | 201 | 68 | 148 | 76 |
| 6 | 177 | 331 | 156 | 1490 | 1190 | 414 | 61 | 55 | 714 | 68 | 161 | 76 |
| 7 | 151 | 268 | 156 | 1040 | 1690 | 350 | 61 | 55 | 641 | 67 | 480 | 75 |
| 8 | 151 | 267 | 201 | 682 | 1610 | 378 | 61 | 55 | 329 | 132 | 550 | 74 |
| 9 | 151 | 265 | 232 | 549 | 1160 | 591 | 61 | 55 | 137 | 141 | 269 | 76 |
| 10 | 192 | 265 | 235 | 463 | 739 | 533 | 57 | 55 | 337 | 75 | 74 | 158 |
| 11 | 262 | 266 | 279 | 305 | 665 | 581 | 51 | 55 | 300 | 63 | 118 | 231 |
| 12 | 288 | 264 | 308 | 293 | 731 | 630 | 51 | 55 | 645 | 66 | 126 | 226 |
| 13 | 214 | 262 | 178 | 342 | 669 | 533 | 51 | 55 | 586 | 68 | 75 | 225 |
| 14 | 171 | 270 | 147 | 341 | 524 | 494 | 52 | 55 | 246 | 68 | 75 | 222 |
| 15 | 171 | 288 | 230 | 300 | 431 | 412 | 53 | 55 | 230 | 70 | 76 | 219 |
| 16 | 171 | 288 | 197 | 183 | 431 | 412 | 53 | 54 | 178 | 101 | 154 | 222 |
| 17 | 171 | 286 | 209 | 224 | 529 | 412 | 53 | 54 | 196 | 102 | 228 | 233 |
| 18 | 171 | 266 | 152 | 279 | 435 | 376 | 53 | 54 | 248 | 68 | 115 | 234 |
| 19 | 171 | 1540 | 195 | 257 | 677 | 308 | 55 | 53 | 203 | 68 | 74 | 234 |
| 20 | 171 | 1790 | 321 | 209 | 785 | 308 | 55 | 53 | 178 | 68 | 73 | 234 |
| 21 | 190 | 626 | 645 | 131 | 1050 | 282 | 52 | 53 | 137 | 68 | 74 | 225 |
| 22 | 242 | 298 | 868 | 68 | 1430 | 310 | 49 | 53 | 66 | 68 | 74 | 196 |
| 23 | 295 | 298 | 834 | 68 | 2110 | 401 | 50 | 55 | 64 | 68 | 73 | 173 |
| 24 | 565 | 296 | 718 | 200 | 2130 | 508 | 51 | 86 | 86 | 68 | 92 | 173 |
| 25 | 532 | 295 | 615 | 245 | 1550 | 757 | 52 | 517 | 119 | 68 | 126 | 173 |
| 26 | 278 | 292 | 696 | 114 | 1280 | 750 | 53 | 852 | 89 | 67 | 73 | 174 |
| 27 | 209 | 288 | 690 | 114 | 1030 | 593 | 53 | 646 | 89 | 606 | 73 | 173 |
| 28 | 209 | 425 | 474 | 164 | 834 | 600 | 53 | 349 | 77 | 469 | 73 | 171 |
| 29 | 209 | 887 | 409 | 196 | --- | 466 | 53 | 349 | 67 | 163 | 74 | 170 |
| 30 | 208 | 839 | 373 | 147 | --- | 414 | 53 | 292 | 67 | 135 | 74 | 168 |
| 31 | 266 | --- | 384 | 276 | --- | 391 | --- | 188 | --- | 136 | 74 | --- |
| TOTAL | 7043 | 12703 | 11228 | 14656 | 36620 | 15110 | 1722 | 4528 | 6905 | 3676 | 7411 | 4907 |
| MEAN | 227 | 423 | 362 | 473 | 1308 | 487 | 57.4 | 146 | 230 | 119 | 239 | 164 |
| MAX | 565 | 1790 | 868 | 1630 | 4100 | 770 | 159 | 852 | 719 | 606 | 1810 | 234 |
| MIN | 151 | 215 | 147 | 68 | 431 | 282 | 45 | 53 | 64 | 63 | 73 | 74 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL 191631 | MEAN | 524 | MAX | 6020 | MIN | 57 |
| WTR YR 1985 | TOTAL 126509 | MEAN | 347 | MAX | 4100 | MIN | 45 |

## 03208500 RUSSELL FORK AT HAYSI, VA

**LOCATION.**--Lat 37°12'25", long 82°17'45", Dickenson County, Hydrologic Unit 05070202, on right bank 180 ft downstream from bridge on State Highway 63, at Haysi, and 700 ft downstream from McClure River.

**DRAINAGE AREA.**--286 mi².

**PERIOD OF RECORD.**--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

**REVISED RECORDS.**--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

**GAGE.**--Water-stage recorder. Datum of gage is 1,237.61 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft upstream at same datum.

**REMARKS.**--Estimated daily discharges: Oct. 4-23, Dec. 5-19, and Jan. 16, 19-30. Records good except those for periods of doubtful or no gage-height record, Oct. 4-23 and Dec. 5-19, and periods with ice effect, Jan. 16, 19-30, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--59 years, 330 ft³/s, 15.67 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 59,000 ft³/s, Apr. 4, 1977, gage height, 28.24 ft, from rating curve extended above 32,000 ft³/s on basis of slope-area measurement of peak flow; minimum observed, 0.2 ft³/s, June 27, 28, 1936.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 4,500 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 1400 | *8,280 | *9.11 | No other peak equal to or greater than base discharge. | | | |

Minimum daily discharge, 12 ft³/s, Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 48 | 26 | 211 | 374 | 4690 | 414 | 245 | 102 | 116 | 77 | 330 | 46 |
| 2 | 43 | 26 | 150 | 914 | 2390 | 368 | 214 | 103 | 111 | 82 | 555 | 37 |
| 3 | 26 | 27 | 143 | 899 | 993 | 305 | 204 | 400 | 112 | 64 | 228 | 33 |
| 4 | 17 | 26 | 131 | 780 | 624 | 270 | 196 | 293 | 93 | 203 | 134 | 30 |
| 5 | 14 | 50 | 98 | 1200 | 547 | 252 | 185 | 213 | 102 | 91 | 96 | 27 |
| 6 | 12 | 65 | 110 | 792 | 958 | 214 | 245 | 168 | 382 | 61 | 83 | 27 |
| 7 | 13 | 53 | 110 | 555 | 951 | 186 | 235 | 146 | 200 | 51 | 83 | 37 |
| 8 | 15 | 41 | 94 | 408 | 686 | 200 | 262 | 128 | 151 | 45 | 81 | 33 |
| 9 | 45 | 38 | 100 | 300 | 503 | 311 | 275 | 107 | 126 | 39 | 68 | 30 |
| 10 | 38 | 35 | 96 | 248 | 429 | 302 | 273 | 94 | 114 | 46 | 59 | 36 |
| 11 | 23 | 37 | 105 | 226 | 361 | 308 | 273 | 87 | 612 | 89 | 54 | 35 |
| 12 | 18 | 50 | 115 | 188 | 505 | 312 | 259 | 85 | 345 | 57 | 51 | 37 |
| 13 | 16 | 44 | 120 | 153 | 448 | 269 | 242 | 81 | 235 | 61 | 45 | 29 |
| 14 | 14 | 36 | 120 | 164 | 397 | 252 | 229 | 73 | 156 | 49 | 41 | 25 |
| 15 | 15 | 34 | 100 | 159 | 346 | 229 | 224 | 75 | 115 | 61 | 38 | 23 |
| 16 | 14 | 35 | 95 | 120 | 301 | 207 | 217 | 79 | 102 | 287 | 42 | 21 |
| 17 | 14 | 31 | 90 | 149 | 298 | 201 | 187 | 119 | 134 | 132 | 149 | 20 |
| 18 | 13 | 52 | 85 | 143 | 262 | 188 | 159 | 153 | 100 | 79 | 156 | 19 |
| 19 | 13 | 1490 | 100 | 120 | 336 | 166 | 147 | 126 | 79 | 58 | 93 | 19 |
| 20 | [illegible] | 540 | 226 | 100 | 463 | 156 | 146 | 89 | 69 | 47 | 124 | 18 |
| 21 | [illegible] | 233 | 279 | 90 | 675 | 152 | 146 | 78 | 59 | 42 | 107 | 17 |
| 22 | [illegible] | 149 | 399 | 100 | 970 | 175 | 141 | 71 | 50 | 40 | 73 | 17 |
| 23 | 1[illegible] | 134 | 392 | 110 | 1410 | 200 | 132 | 148 | 47 | 38 | 57 | 17 |
| 24 | 34[illegible] | 104 | 311 | 100 | 1130 | 274 | 129 | 459 | 45 | 33 | 49 | 17 |
| 25 | 152 | 81 | 316 | 105 | 829 | 376 | 127 | 463 | 70 | 31 | 129 | 18 |
| 26 | 97 | 70 | 274 | 95 | 704 | 344 | 112 | 312 | 51 | 49 | 102 | 20 |
| 27 | 75 | 62 | 253 | 85 | 579 | 308 | 108 | 202 | 40 | 494 | 77 | 20 |
| 28 | 66 | 430 | 215 | 90 | 473 | 292 | 138 | 151 | 36 | 192 | 61 | 20 |
| 29 | 59 | 594 | 184 | 88 | --- | 264 | 141 | 143 | 33 | 105 | 50 | 18 |
| 30 | 45 | 315 | 168 | 86 | --- | 234 | 116 | 122 | 38 | 74 | 47 | 16 |
| 31 | 29 | --- | 244 | 327 | --- | 222 | --- | 103 | --- | 63 | 54 | --- |
| TOTAL | 1511 | 4908 | 5434 | 9268 | 23258 | 7951 | 5707 | 4973 | 3923 | 2840 | 3316 | 762 |
| MEAN | 48.7 | 164 | 175 | 299 | 831 | 256 | 190 | 160 | 131 | 91.6 | 107 | 25.4 |
| MAX | 345 | 1490 | 399 | 1200 | 4690 | 414 | 275 | 463 | 612 | 494 | 555 | 46 |
| MIN | 12 | 26 | 85 | 85 | 262 | 152 | 108 | 71 | 33 | 31 | 38 | 16 |
| CFSM | .17 | .57 | .61 | 1.05 | 2.91 | .90 | .66 | .56 | .46 | .32 | .37 | .09 |
| IN. | .20 | .64 | .71 | 1.21 | 3.03 | 1.03 | .74 | .65 | .51 | .37 | .43 | .10 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 129307 | MEAN | 353 | MAX | 17500 | MIN | 12 | CFSM | 1.23 | IN. 16.82 |
| WTR YR 1985 | TOTAL | 73851 | MEAN | 202 | MAX | 4690 | MIN | 12 | CFSM | .71 | IN. 9.61 |

### 03208680 NORTH FORK POUND RIVER LAKE AT POUND, VA

**LOCATION.**--Lat 37°07'27", long 82°37'52", Wise County, Hydrologic Unit 05070202, in control tower of North Fork Pound Dam at Pound, 1,200 ft upstream from Stacy Branch, and 1.2 mi upstream from South Fork Pound River.

**DRAINAGE AREA.**--17.2 mi².

**PERIOD OF RECORD.**--July 1966 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is National Geodetic Vertical datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Aug. 29, 1966, nonrecording gage at same site and datum.

**REMARKS.**--Lake is formed by rockfill dam. Spillway with crest at elevation 1,644.0 ft is in a saddle 350 ft southeast of dam. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,556.5 ft. Storage began in September 1964 during construction with peak discharge affected thereafter; initial filling for regular operation started July 13, 1966. Total capacity at elevation 1,644.0 ft, top of spillway, is 11,290 acre-ft of which 8,110 acre-ft is flood-control storage for summer operations between elevations 1,611.0 ft, top of summer conservation pool, and 1,644.0 ft; an additional 1,290 acre-ft is available for flood control during the period December to March between elevations 1,601.0 ft, top of winter conservation pool, and 1,611.0 ft; contents at established minimum pool, 1,601.0 ft, is 1,900 acre-ft; dead storage is 7 acre-ft below elevation 1,556.5 ft. Figures given herein represent total contents. Lake is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

**COOPERATION.**--Records were provided by the U.S. Army Corps of Engineers.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum contents, 6,920 acre-ft, Apr. 8, 1977, elevation, 1,629.41 ft; minimum (after initial filling for regular operation), 1,660 acre-ft, Jan. 23, 1969, elevation, 1,598.62 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum contents, 3,320 acre-ft, June 10, elevation, 1,611.89 ft; minimum, 1,970 acre-ft, Mar. 21, elevation, 1,601.71 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 1,609.38 | 2,942 | - |
| Oct. 31 | 1,606.86 | 2,591 | -351 |
| Nov. 30 | 1,602.47 | 2,055 | -536 |
| Dec. 31 | 1,603.22 | 2,140 | +85 |
| CAL YR 1984 | - | - | +126 |
| Jan. 31 | 1,602.42 | 2,049 | -91 |
| Feb. 28 | 1,601.77 | 1,977 | -72 |
| Mar. 31 | 1,602.70 | 2,081 | +104 |
| Apr. 30 | 1,609.18 | 2,913 | +832 |
| May 31 | 1,611.35 | 3,238 | +325 |
| June 30 | 1,610.97 | 3,179 | -59 |
| July 31 | 1,610.20 | 3,063 | -116 |
| Aug. 31 | 1,610.52 | 3,111 | +48 |
| Sept. 30 | 1,609.03 | 2,891 | -220 |
| WTR YR 1985 | - | - | -51 |

## 03208700 NORTH FORK POUND RIVER AT POUND, VA

**LOCATION.**--Lat 37°07'32", long 82°37'36", Wise County, Hydrologic Unit 05070202, on right bank at Pound, 700 ft downstream from Stacy Branch, 1,600 ft downstream from North Fork Pound River Dam, and 0.9 mi upstream from confluence with South Fork.

**DRAINAGE AREA.**--18.5 mi$^2$.

**PERIOD OF RECORD.**--October 1961 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 1,500.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1965, on left bank at datum 44.88 ft higher.

**REMARKS.**--No estimated daily discharges. Records good. Flow regulated since August 1966 by North Fork Pound River Lake (station 03208680). U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--24 years, 28.5 ft$^3$/s, 20.92 in/yr, unadjusted.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 4,480 ft$^3$/s, Mar. 12, 1963, gage height, 61.58 ft, present datum, from rating curve extended above 650 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 0.02 ft$^3$/s, Sept. 16, 1964, Aug. 11, 12, Oct. 28, Nov. 10, 1969; minimum daily, 0.04 ft$^3$/s, Sept. 15, 1964, Aug. 11, 1969; minimum gage height, 47.66 ft, Sept. 16, 1964, present datum. Maximum discharge since construction of North Fork Pound River Dam in 1966, 1,230 ft$^3$/s, Sept. 14, 1982, gage height, 55.79 ft.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Jan. 29, 1957, reached a stage of about 63.9 ft, present datum, from U.S. Army Corps of Engineers floodmark.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 213 ft$^3$/s, Feb. 1, gage height, 50.60 ft; minimum, 2.8 ft$^3$/s, May 7, gage height, 48.31 ft; minimum daily, 3.8 ft$^3$/s, Aug. 14, 15, 23, 28, 29.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.3 | 7.1 | 21 | 62 | 134 | 29 | 7.2 | 4.6 | 7.0 | 4.9 | 6.1 | 4.0 |
| 2 | 5.3 | 7.3 | 21 | 88 | 179 | 21 | 5.3 | 5.2 | 7.0 | 4.6 | 5.4 | 4.0 |
| 3 | 5.3 | 7.3 | 29 | 98 | 129 | 20 | 5.4 | 6.0 | 6.9 | 4.4 | 4.7 | 4.0 |
| 4 | 5.3 | 7.3 | 27 | 82 | 62 | 20 | 5.3 | 5.8 | 5.1 | 4.4 | 4.4 | 4.0 |
| 5 | 5.2 | 12 | 12 | 61 | 38 | 18 | 5.5 | 5.5 | 5.1 | 4.3 | 4.4 | 4.0 |
| 6 | 5.3 | 16 | 8.9 | 59 | 68 | 14 | 7.2 | 5.2 | 4.9 | 4.4 | 4.2 | 4.5 |
| 7 | 5.3 | 19 | 8.7 | 48 | 82 | 13 | 7.3 | 4.9 | 6.6 | 4.3 | 5.5 | 4.0 |
| 8 | 5.6 | 19 | 8.7 | 33 | 53 | 14 | 7.1 | 8.1 | 7.5 | 4.3 | 4.9 | 4.0 |
| 9 | 5.6 | 19 | 8.7 | 33 | 21 | 15 | 7.0 | 9.1 | 7.3 | 4.4 | 4.3 | 4.0 |
| 10 | 5.4 | 19 | 12 | 33 | 46 | 14 | 6.3 | 9.1 | 7.5 | 4.6 | 4.2 | 4.0 |
| 11 | 5.6 | 19 | 15 | 26 | 56 | 52 | 5.8 | 9.1 | 25 | 4.4 | 4.0 | 4.0 |
| 12 | 5.6 | 19 | 22 | 17 | 42 | 60 | 5.5 | 9.1 | 37 | 4.4 | 4.0 | 4.0 |
| 13 | 5.8 | 19 | 24 | 17 | 71 | 49 | 5.3 | 9.1 | 27 | 4.4 | 3.9 | 4.0 |
| 14 | 5.9 | 14 | 21 | 17 | 70 | 49 | 5.1 | 8.8 | 10 | 4.4 | 3.8 | 4.0 |
| 15 | 5.6 | 12 | 16 | 17 | 50 | 35 | 5.3 | 8.9 | 7.1 | 4.6 | 3.8 | 4.0 |
| 16 | 5.6 | 8.5 | 16 | 16 | 21 | 17 | 5.2 | 8.8 | 6.7 | 4.4 | 3.9 | 4.0 |
| 17 | 5.6 | 6.0 | 11 | 16 | 21 | 16 | 4.9 | 9.6 | 6.7 | 4.4 | 4.3 | 4.0 |
| 18 | 5.6 | 8.9 | 8.4 | 13 | 21 | 16 | 4.7 | 11 | 6.7 | 4.4 | 4.0 | 4.0 |
| 19 | 5.8 | 94 | 8.9 | 8.3 | 36 | 16 | 4.7 | 9.8 | 5.7 | 4.4 | 4.0 | 4.0 |
| 20 | 6.6 | 105 | 28 | 8.3 | 43 | 16 | 4.6 | 13 | 4.2 | 4.4 | 4.0 | 4.0 |
| 21 | 6.1 | 79 | 48 | 8.3 | 64 | 16 | 4.6 | 14 | 4.2 | 4.4 | 4.0 | 4.0 |
| 22 | 6.2 | 52 | 44 | 8.3 | 99 | 13 | 4.5 | 14 | 4.2 | 4.4 | 3.9 | 4.0 |
| 23 | 7.2 | 37 | 43 | 8.3 | 109 | 9.6 | 4.4 | 15 | 4.2 | 4.4 | 3.8 | 4.0 |
| 24 | 18 | 21 | 32 | 8.3 | 162 | 12 | 4.4 | 35 | 4.4 | 4.4 | 3.9 | 4.0 |
| 25 | 25 | 20 | 24 | 8.3 | 151 | 17 | 4.4 | 29 | 4.3 | 4.4 | 4.0 | 4.0 |
| 26 | 20 | 20 | 49 | 8.1 | 100 | 42 | 4.3 | 32 | 4.2 | 4.4 | 4.0 | 4.3 |
| 27 | 14 | 20 | 59 | 8.0 | 54 | 50 | 4.6 | 40 | 4.2 | 5.0 | 3.9 | 4.1 |
| 28 | 14 | 43 | 39 | 8.0 | 44 | 49 | 5.0 | 29 | 4.2 | 4.4 | 3.8 | 4.0 |
| 29 | 14 | 52 | 17 | 8.0 | --- | 33 | 4.7 | 9.7 | 4.2 | 4.4 | 3.8 | 4.0 |
| 30 | 12 | 38 | 17 | 8.0 | --- | 11 | 4.6 | 7.2 | 4.3 | 4.4 | 3.9 | 4.0 |
| 31 | 8.7 | --- | 38 | 11 | --- | 11 | --- | 7.0 | --- | 4.4 | 4.0 | --- |
| TOTAL | 256.5 | 820.4 | 737.3 | 845.2 | 2026 | 767.6 | 160.2 | 392.6 | 243.4 | 137.8 | 130.8 | 120.9 |
| MEAN | 8.27 | 27.3 | 23.8 | 27.3 | 72.4 | 24.8 | 5.34 | 12.7 | 8.11 | 4.45 | 4.22 | 4.03 |
| MAX | 25 | 105 | 59 | 98 | 179 | 60 | 7.3 | 40 | 37 | 5.0 | 6.1 | 4.5 |
| MIN | 5.2 | 6.0 | 8.4 | 8.0 | 21 | 9.6 | 4.3 | 4.6 | 4.2 | 4.3 | 3.8 | 4.0 |
| (*) | -6 | -9 | +1 | -1 | -1 | +2 | +14 | +5 | -1 | -2 | +1 | -4 |
| MEAN† | 2.27 | 18.3 | 24.8 | 26.3 | 71.4 | 26.8 | 19.3 | 17.7 | 7.11 | 2.45 | 5.22 | .03 |
| CFSM† | .12 | .99 | 1.34 | 1.42 | 3.86 | 1.45 | 1.04 | .96 | .38 | .13 | .28 | .002 |
| IN.† | .14 | 1.11 | 1.54 | 1.64 | 4.02 | 1.67 | 1.17 | 1.10 | .43 | .15 | .33 | .00 |

CAL YR 1984 TOTAL 10022.7 MEAN 27.4 MAX 342 MIN 2.5 MEAN† 27.4 CFSM† 1.48 IN.† 20.15
WTR YR 1985 TOTAL 6638.7 MEAN 18.2 MAX 179 MIN 3.8 MEAN† 18.2 CFSM† .98 IN.† 13.35

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA

**LOCATION.**--Lat 37°07'26", long 82°26'20", Dickenson County, Hydrologic Unit 05070202, on left bank on State Highway 649, 500 ft downstream from Clinchfield Railway bridge, 1,000 ft downstream from Rush Creek, and 2.1 mi southeast of Clintwood.

**DRAINAGE AREA.**--66.5 mi$^2$.

**PERIOD OF RECORD.**--October 1963 to current year.

**REVISED RECORDS.**--WDR VA-77-1: 1967(M).

**GAGE.**--Water-stage recorder. Datum of gage is 1,440.30 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Estimated daily discharges: Jan. 16-30. Records good. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--22 years, 80.6 ft$^3$/s, 16.46 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 18,000 ft$^3$/s, Apr. 4, 1977, gage height, 26.09 ft, from floodmark, from rating curve extended above 3,100 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 0.48 ft$^3$/s, Sept. 28, 1964, gage height, 0.91 ft.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Jan. 29, 1957, reached a stage of about 20.0 ft.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 1,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 0400 | 1,000 | 6.74 | Feb. 1 | 1200 | *1,360 | *7.98 |

Minimum daily discharge, 5.0 ft$^3$/s, Oct. 17.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 12 | 54 | 139 | 924 | 99 | 55 | 32 | 21 | 9.4 | 130 | 11 |
| 2 | 11 | 16 | 41 | 202 | 428 | 89 | 44 | 32 | 20 | 29 | 84 | 8.8 |
| 3 | 8.2 | 14 | 40 | 180 | 212 | 73 | 40 | 47 | 21 | 21 | 35 | 7.8 |
| 4 | 9.1 | 13 | 33 | 211 | 149 | 66 | 40 | 34 | 16 | 19 | 23 | 7.1 |
| 5 | 6.8 | 17 | 27 | 260 | 137 | 64 | 36 | 28 | 30 | 12 | 18 | 10 |
| 6 | 9.1 | 19 | 37 | 171 | 191 | 54 | 79 | 25 | 38 | 10 | 16 | 21 |
| 7 | 9.8 | 18 | 35 | 130 | 170 | 48 | 73 | 25 | 25 | 9.5 | 19 | 24 |
| 8 | 11 | 14 | 38 | 100 | 132 | 51 | 78 | 25 | 22 | 8.3 | 19 | 12 |
| 9 | 15 | 17 | 31 | 78 | 104 | 80 | 77 | 22 | 16 | 7.8 | 14 | 9.9 |
| 10 | 9.0 | 16 | 32 | 68 | 94 | 67 | 76 | 18 | 20 | 13 | 17 | 12 |
| 11 | 7.5 | 17 | 37 | 65 | 84 | 67 | 68 | 18 | 126 | 24 | 11 | 44 |
| 12 | 9.4 | 17 | 37 | 56 | 138 | 69 | 62 | 19 | 57 | 11 | 9.3 | 15 |
| 13 | 6.7 | 15 | 36 | 47 | 119 | 58 | 58 | 18 | 37 | 16 | 8.3 | 11 |
| 14 | 6.2 | 16 | 32 | 50 | 105 | 54 | 54 | 16 | 24 | 9.2 | 11 | 12 |
| 15 | 5.8 | 13 | 26 | 44 | 93 | 52 | 53 | 18 | 20 | 9.0 | 7.7 | 8.1 |
| 16 | 5.4 | 17 | 25 | 32 | 99 | 49 | 55 | 22 | 21 | 92 | 26 | 7.2 |
| 17 | 5.0 | 13 | 25 | 40 | 86 | 48 | 49 | 39 | 19 | 25 | 63 | 6.9 |
| 18 | 6.9 | 26 | 25 | 38 | 71 | 44 | 43 | 41 | 19 | 17 | 45 | 8.3 |
| 19 | 6.3 | 459 | 36 | 32 | 90 | 37 | 39 | 25 | 18 | 12 | 23 | 6.3 |
| 20 | 51 | 133 | 55 | 24 | 125 | 34 | 36 | 20 | 17 | 12 | 22 | 8.3 |
| 21 | 29 | 68 | 67 | 26 | 182 | 35 | 34 | 17 | 13 | 8.5 | 21 | 8.4 |
| 22 | 17 | 46 | 112 | 27 | 256 | 47 | 33 | 20 | 14 | 8.4 | 14 | 6.3 |
| 23 | 110 | 35 | 95 | 30 | 321 | 61 | 32 | 49 | 12 | 7.4 | 13 | 5.4 |
| 24 | 111 | 30 | 74 | 28 | 267 | 79 | 33 | 89 | 18 | 9.4 | 14 | 5.9 |
| 25 | 44 | 26 | 95 | 29 | 196 | 83 | 32 | 77 | 22 | 9.2 | 35 | 9.9 |
| 26 | 28 | 23 | 79 | 26 | 172 | 71 | 28 | 53 | 15 | 22 | 21 | 6.2 |
| 27 | 23 | 22 | 71 | 23 | 140 | 68 | 28 | 39 | 14 | 102 | 15 | 12 |
| 28 | 18 | 112 | 64 | 25 | 115 | 63 | 48 | 32 | 12 | 30 | 14 | 9.3 |
| 29 | 16 | 101 | 57 | 24 | --- | 58 | 41 | 28 | 11 | 17 | 10 | 6.2 |
| 30 | 14 | 69 | 57 | 23 | --- | 53 | 33 | 23 | 8.3 | 14 | 11 | 5.4 |
| 31 | 16 | --- | 117 | 102 | --- | 51 | --- | 19 | --- | 17 | 16 | --- |
| TOTAL | 645.2 | 1414 | 1590 | 2330 | 5200 | 1872 | 1457 | 970 | 726.3 | 611.1 | 785.3 | 325.7 |
| MEAN | 20.8 | 47.1 | 51.3 | 75.2 | 186 | 60.4 | 48.6 | 31.3 | 24.2 | 19.7 | 25.3 | 10.9 |
| MAX | 111 | 459 | 117 | 260 | 924 | 99 | 79 | 89 | 126 | 102 | 130 | 44 |
| MIN | 5.0 | 12 | 25 | 23 | 71 | 34 | 28 | 16 | 8.3 | 7.4 | 7.7 | 5.4 |
| CFSM | .31 | .71 | .77 | 1.13 | 2.80 | .91 | .73 | .47 | .36 | .30 | .38 | .16 |
| IN. | .36 | .79 | .89 | 1.30 | 2.91 | 1.05 | .82 | .54 | .41 | .34 | .44 | .18 |

| | TOTAL | | MEAN | | MAX | | MIN | | CFSM | | IN. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 29248.9 | MEAN | 79.9 | MAX | 3160 | MIN | 4.6 | CFSM | 1.20 | IN. | 16.36 |
| WTR YR 1985 | TOTAL | 17926.6 | MEAN | 49.1 | MAX | 924 | MIN | 5.0 | CFSM | .74 | IN. | 10.03 |

## 03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA

**LOCATION.**--Lat 37°14'00", long 82°20'56", Dickenson County, Hydrologic Unit 05070202, in control tower of John W. Flannagan Dam on Pound River, 1.3 mi upstream from Blacklog Branch, and 3.7 mi northwest of Haysi.

**DRAINAGE AREA.**--221 mi².

**PERIOD OF RECORD.**--September 1964 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Mar. 31, 1965, nonrecording gage at same site and datum.

**REMARKS.**--Reservoir is formed by rockfill dam. Spillway with crest at elevation 1,410.0 ft is in a saddle 0.3 mi upstream from dam and is equipped with 6 radial gates 36 ft high by 42 ft wide. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,230.0 ft. Storage began in September 1961 during construction with peak discharge affected thereafter; initial filling for regular operations started in March 1965. Total capacity at elevation 1,446.0 ft, top of gates, is 145,700 acre-ft of which 78,600 acre-ft is controlled flood storage for summer operations between elevations 1,396.0 ft, top of summer conservation pool, and 1,446.0 ft; an additional 16,500 acre-ft is available for flood control during the period December to March between elevations 1,380.0 ft, top of winter conservation pool, and 1,396.0 ft; contents at established minimum pool, 1,314.0 ft, is 12,000 acre-ft; dead storage is 300 acre-ft below elevation 1,230.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

**COOPERATION.**--Records were provided by the U.S. Army Corps of Engineers.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum contents, 116,500 acre-ft, Apr. 7, 1977, elevation, 1,430.80 ft; minimum (after initial filling for regular operation), 11,800 acre-ft, Apr. 1, 1965, elevation, 1,313.42 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum contents, 67,500 acre-ft, Aug. 11, elevation, 1,396.33 ft; minimum, 27,800 acre-ft, Nov. 4, elevation, 1,349.81 ft.

### MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 1,393.34 | 64,100 | - |
| Oct. 31 | 1,350.75 | 28,400 | -35,700 |
| Nov. 30 | 1,350.57 | 28,200 | -200 |
| Dec. 31 | 1,351.50 | 28,800 | +600 |
| CAL YR 1984 | - | - | -11,900 |
| Jan. 31 | 1,356.18 | 31,800 | +3,000 |
| Feb. 28 | 1,380.44 | 51,000 | +19,200 |
| Mar. 31 | 1,381.96 | 52,400 | +1,400 |
| Apr. 30 | 1,388.77 | 59,200 | +6,800 |
| May 31 | 1,392.36 | 63,000 | +3,800 |
| June 30 | 1,394.74 | 65,700 | +2,700 |
| July 31 | 1,395.19 | 66,200 | +500 |
| Aug. 31 | 1,395.83 | 66,900 | +700 |
| Sept. 30 | 1,393.56 | 64,300 | -2,600 |
| WTR YR 1985 | - | - | +200 |

## 03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA

LOCATION.--Lat 37°14'13", long 82°20'36", Dickenson County, Hydrologic Unit 05070202, on right bank 1,100 ft upstream from Blacklog Branch, 1,700 ft downstream from John W. Flannagan Dam, 1.4 mi upstream from mouth, and 3.4 mi northwest of Haysi.

DRAINAGE AREA.--221 $mi^2$.

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1963, published as Pound River near Haysi.

REVISED RECORDS.--WSP 953: 1940-41. WSP 1003: 1942, 1943(P). WSP 1275: 1927-30, 1931(M), 1932-39.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1939, nonrecording gage at site 3.8 mi upstream at different datum. Dec. 20, 1939, to Sept. 30, 1963, water-stage recorder at site 4.6 mi upstream at datum 79.91 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated since March 1965 by John W. Flannagan Reservoir (station 03208990) 1,700 ft upstream and since August 1966 by North Fork Pound River Lake (station 03208680) 33 mi upstream. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--59 years, 275 $ft^3/s$, 16.90 in/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,000 $ft^3/s$, Mar. 23, 1929, gage height, 16.5 ft, from floodmarks, site and datum then in use; minimum, less than 0.1 $ft^3/s$ on several days in September 1932. Maximum discharge since construction of John W. Flannagan Dam in 1965, 4,540 $ft^3/s$, Apr. 8, 1977, gage height, 8.20 ft; minimum, 1.2 $ft^3/s$, Feb. 16, 1968, gage height, 1.42 ft; minimum daily, 2.3 $ft^3/s$, June 26-29, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,360 $ft^3/s$, Feb. 4, gage height, 6.18 ft; minimum, 7.3 $ft^3/s$, Jan. 29, gage height, 1.74 ft; minimum daily, 9.4 $ft^3/s$, Jan. 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 56 | 309 | 237 | 380 | 17 | 323 | 94 | 54 | 54 | 54 | 57 | 77 |
| 2 | 327 | 56 | 236 | 667 | 16 | 275 | 56 | 54 | 54 | 54 | 57 | 77 |
| 3 | 765 | 57 | 148 | 887 | 16 | 275 | 57 | 54 | 54 | 54 | 87 | 93 |
| 4 | 670 | 57 | 106 | 886 | 1010 | 274 | 57 | 54 | 54 | 53 | 94 | 104 |
| 5 | 575 | 57 | 106 | 826 | 921 | 254 | 57 | 54 | 54 | 53 | 61 | 104 |
| 6 | 506 | 57 | 106 | 825 | 12 | 218 | 57 | 54 | 54 | 52 | 54 | 104 |
| 7 | 504 | 58 | 84 | 811 | 12 | 218 | 56 | 54 | 56 | 52 | 56 | 104 |
| 8 | 504 | 57 | 73 | 577 | 12 | 138 | 56 | 54 | 54 | 69 | 56 | 104 |
| 9 | 493 | 57 | 73 | 315 | 12 | 100 | 56 | 54 | 54 | 66 | 56 | 104 |
| 10 | 715 | 57 | 117 | 248 | 12 | 100 | 56 | 54 | 54 | 54 | 56 | 83 |
| 11 | 712 | 57 | 138 | 226 | 12 | 415 | 55 | 54 | 54 | 54 | 56 | 45 |
| 12 | 604 | 57 | 138 | 200 | 12 | 580 | 55 | 54 | 54 | 54 | 56 | 46 |
| 13 | 826 | 57 | 166 | 200 | 12 | 579 | 54 | 54 | 54 | 54 | 57 | 47 |
| 14 | 821 | 56 | 166 | 118 | 12 | 427 | 54 | 54 | 54 | 54 | 74 | 49 |
| 15 | 604 | 55 | 140 | 105 | 139 | 203 | 54 | 54 | 54 | 54 | 89 | 49 |
| 16 | 720 | 57 | 140 | 111 | 331 | 177 | 54 | 54 | 54 | 54 | 88 | 49 |
| 17 | 718 | 57 | 119 | 28 | 331 | 179 | 54 | 54 | 54 | 54 | 87 | 49 |
| 18 | 715 | 57 | 109 | 12 | 331 | 180 | 54 | 54 | 53 | 54 | 87 | 49 |
| 19 | 518 | 565 | 110 | 11 | 270 | 180 | 54 | 54 | 53 | 54 | 71 | 49 |
| 20 | 595 | 938 | 232 | 12 | 241 | 183 | 53 | 54 | 53 | 55 | 51 | 49 |
| 21 | 592 | 677 | 289 | 12 | 482 | 183 | 52 | 54 | 52 | 56 | 52 | 49 |
| 22 | 536 | 317 | 290 | 12 | 763 | 186 | 52 | 54 | 52 | 70 | 52 | 49 |
| 23 | 738 | 275 | 293 | 11 | 845 | 186 | 52 | 54 | 52 | 85 | 73 | 47 |
| 24 | 910 | 209 | 327 | 11 | 847 | 186 | 52 | 54 | 52 | 85 | 87 | 47 |
| 25 | 970 | 209 | 343 | 11 | 1520 | 276 | 52 | 54 | 52 | 85 | 87 | 47 |
| 26 | 742 | 209 | 396 | 12 | 1260 | 319 | 52 | 54 | 52 | 85 | 65 | 47 |
| 27 | 965 | 138 | 595 | 12 | 572 | 319 | 53 | 54 | 52 | 87 | 51 | 47 |
| 28 | 742 | 173 | 525 | 12 | 412 | 319 | 54 | 54 | 53 | 85 | 52 | 47 |
| 29 | 389 | 400 | 293 | 11 | --- | 264 | 54 | 54 | 52 | 65 | 66 | 46 |
| 30 | 571 | 409 | 293 | 9.4 | --- | 177 | 53 | 54 | 53 | 54 | 77 | 46 |
| 31 | 597 | --- | 331 | 13 | --- | 177 | --- | 54 | --- | 56 | 77 | --- |
| TOTAL | 19700 | 5794 | 6719 | 7571.4 | 10432 | 7870 | 1669 | 1674 | 1601 | 1915 | 2089 | 1907 |
| MEAN | 635 | 193 | 217 | 244 | 373 | 254 | 55.6 | 54.0 | 53.4 | 61.8 | 67.4 | 63.6 |
| MAX | 970 | 938 | 595 | 887 | 1520 | 580 | 94 | 54 | 56 | 87 | 94 | 104 |
| MIN | 56 | 55 | 73 | 9.4 | 12 | 100 | 52 | 54 | 52 | 52 | 51 | 45 |
| (*) | -587 | -12 | +11 | +48 | +345 | +25 | +128 | +67 | +44 | +6 | +12 | -48 |
| MEAN† | 48.5 | 181 | 228 | 292 | 718 | 279 | 184 | 121 | 97.4 | 67.8 | 79.4 | 15.6 |
| CFSM† | .22 | .82 | 1.03 | 1.32 | 3.25 | 1.26 | .83 | .55 | .44 | .31 | .36 | .07 |
| IN.† | .25 | .91 | 1.19 | 1.52 | 3.38 | 1.46 | .93 | .63 | .49 | .35 | .41 | .08 |

CAL YR 1984 TOTAL 113195 MEAN 309 MAX 3990 MIN 23 MEAN† 293 CFSM† 1.33 IN.† 18.07
WTR YR 1985 TOTAL 68941.4 MEAN 189 MAX 1520 MIN 9.4 MEAN† 189 CFSM† .86 IN.† 11.60

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoir; provided by U.S. Army Corps of Engineers.

† Adjusted for change in contents.

## 03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA

**LOCATION.**--Lat 36°45'37", long 81°37'53", Smyth County, Hydrologic Unit 06010102, on right bank 400 ft upstream from highway bridge at Riverside, 900 ft upstream from Spring Branch, 3.2 mi downstream from Redstone Branch, 4.0 mi southeast of Chilhowie, and at mile 97.2.

**DRAINAGE AREA.**--76.1 mi².

**PERIOD OF RECORD.**--October 1920 to December 1931, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1306. Prior to October 1924, published as "near Chilhowie." June 1907 to December 1909, at site 4.5 mi downstream also published as "near Chilhowie"; records not equivalent.

**REVISED RECORDS.**--WSP 1033: 1943-44(m). WSP 1306: Drainage area, 1921-31(M).

**GAGE.**--Water-stage recorder. Datum of gage is 2,106.77 ft above National Geodetic Vertical Datum of 1929. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft downstream at same datum.

**REMARKS.**--Estimated daily discharges: Jan. 20-30. Records good. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--54 years, 112 ft³/s, 19.99 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 9,600 ft³/s, Nov. 6, 1977, gage height, 10.20 ft, from rating curve extended above 3,700 ft³/s on basis of slope-area measurement of peak flow; minimum recorded, 2 ft³/s, Aug. 26, Oct. 15, 1943, Aug. 9, 11, 1944, Oct. 19, 1945, but may have been less in 1925 and 1926 before installation of water-stage recorder; minimum daily, 8 ft³/s, July 19, 1926.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 650 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage height (ft) | Date | Time | Discharge (ft³/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 2100 | 770 | 3.63 | July 27 | 2030 | *842 | *3.77 |

Minimum daily discharge, 22 ft³/s, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 44 | 28 | 68 | 148 | 400 | 197 | 79 | 52 | 72 | 33 | 74 | 37 |
| 2 | 33 | 28 | 56 | 168 | 738 | 168 | 73 | 52 | 68 | 35 | 78 | 35 |
| 3 | 30 | 27 | 51 | 258 | 558 | 142 | 70 | 57 | 64 | 35 | 65 | 34 |
| 4 | 28 | 27 | 47 | 474 | 359 | 127 | 67 | 51 | 59 | 34 | 56 | 32 |
| 5 | 27 | 29 | 45 | 432 | 256 | 120 | 64 | 49 | 55 | 34 | 50 | 31 |
| 6 | 28 | 30 | 49 | 293 | 207 | 106 | 80 | 48 | 53 | 37 | 49 | 31 |
| 7 | 28 | 28 | 44 | 213 | 166 | 96 | 83 | 46 | 52 | 34 | 48 | 31 |
| 8 | 28 | 27 | 43 | 166 | 131 | 90 | 91 | 45 | 49 | 31 | 45 | 29 |
| 9 | 28 | 26 | 42 | 133 | 115 | 98 | 93 | 44 | 48 | 30 | 40 | 29 |
| 10 | 28 | 27 | 43 | 114 | 114 | 90 | 92 | 44 | 44 | 29 | 38 | 28 |
| 11 | 26 | 45 | 49 | 103 | 109 | 92 | 89 | 48 | 43 | 31 | 36 | 27 |
| 12 | 26 | 36 | 50 | 89 | 168 | 93 | 85 | 50 | 47 | 29 | 36 | 27 |
| 13 | 26 | 32 | 52 | 79 | 132 | 87 | 81 | 45 | 43 | 28 | 34 | 27 |
| 14 | 25 | 30 | 50 | 76 | 116 | 85 | 80 | 43 | 40 | 43 | 32 | 25 |
| 15 | 26 | 29 | 48 | 72 | 107 | 82 | 80 | 44 | 38 | 36 | 31 | 25 |
| 16 | 27 | 29 | 46 | 65 | 95 | 79 | 140 | 69 | 42 | 71 | 44 | 24 |
| 17 | 26 | 28 | 44 | 67 | 91 | 76 | 140 | 71 | 53 | 43 | 52 | 24 |
| 18 | 26 | 27 | 44 | 63 | 84 | 74 | 117 | 70 | 53 | 35 | 115 | 23 |
| 19 | 26 | 39 | 45 | 60 | 83 | 71 | 102 | 65 | 46 | 32 | 82 | 23 |
| 20 | 26 | 39 | 73 | 50 | 87 | 68 | 91 | 59 | 41 | 29 | 67 | 23 |
| 21 | 25 | 33 | 75 | 40 | 104 | 66 | 84 | 56 | 39 | 28 | 57 | 23 |
| 22 | 28 | 31 | 78 | 45 | 145 | 68 | 77 | 57 | 37 | 28 | 51 | 23 |
| 23 | 29 | 30 | 72 | 50 | 213 | 75 | 72 | 185 | 36 | 28 | 46 | 23 |
| 24 | 29 | 30 | 71 | 43 | 302 | 82 | 69 | 347 | 67 | 27 | 50 | 23 |
| 25 | 28 | 29 | 149 | 50 | 322 | 93 | 66 | 490 | 46 | 30 | 66 | 23 |
| 26 | 28 | 28 | 175 | 45 | 358 | 96 | 62 | 312 | 40 | 34 | 53 | 23 |
| 27 | 28 | 28 | 138 | 40 | 323 | 93 | 60 | 197 | 37 | 240 | 49 | 23 |
| 28 | 29 | 100 | 112 | 41 | 246 | 91 | 62 | 145 | 35 | 312 | 46 | 23 |
| 29 | 36 | 122 | 95 | 40 | --- | 88 | 58 | 116 | 34 | 134 | 43 | 23 |
| 30 | 32 | 86 | 87 | 38 | --- | 82 | 53 | 95 | 33 | 94 | 40 | 22 |
| 31 | 29 | --- | 116 | 50 | --- | 79 | --- | 82 | --- | 78 | 39 | --- |
| TOTAL | 883 | 1128 | 2157 | 3605 | 6129 | 2954 | 2460 | 3134 | 1414 | 1742 | 1612 | 794 |
| MEAN | 28.5 | 37.6 | 69.6 | 116 | 219 | 95.3 | 82.0 | 101 | 47.1 | 56.2 | 52.0 | 26.5 |
| MAX | 44 | 122 | 175 | 474 | 738 | 197 | 140 | 490 | 72 | 312 | 115 | 37 |
| MIN | 25 | 26 | 42 | 38 | 83 | 66 | 53 | 43 | 33 | 27 | 31 | 22 |
| CFSM | .37 | .49 | .91 | 1.52 | 2.88 | 1.25 | 1.08 | 1.33 | .62 | .74 | .68 | .35 |
| IN. | .43 | .55 | 1.05 | 1.76 | 3.00 | 1.44 | 1.20 | 1.53 | .69 | .85 | .79 | .39 |

CAL YR 1984 TOTAL 43148 MEAN 118 MAX 1850 MIN 24 CFSM 1.55 IN. 21.09
WTR YR 1985 TOTAL 28012 MEAN 76.7 MAX 738 MIN 22 CFSM 1.01 IN. 13.69

### 03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA

LOCATION.--Lat 36°39'06", long 81°50'39", Washington County, Hydrologic Unit 06010102, on right bank 500 ft upstream from bridge on U.S. Highway 58, 0.7 mi downstream from Laurel Creek, 3.2 mi northwest of Damascus, 4.9 mi upstream from Middle Fork, and at mile 77.2.

DRAINAGE AREA.--301 mi$^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306. Published as "at Vestal" prior to October 1978.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1932-33(M).

GAGE.--Water-stage recorder. Datum of gage is 1,792.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 2, 3, Jan. 22 to Feb. 22, and Feb. 27 to Apr. 5. Records good except those for periods of doubtful or no gage-height record, Jan. 2, 3, Jan. 31 to Feb. 22, and Feb. 27 to Apr. 5, and period with ice effect, Jan. 22-30, which are fair. Some diurnal fluctuation caused by powerplant upstream from station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Kingsport, TN.

AVERAGE DISCHARGE.--54 years, 478 ft$^3$/s, 21.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft$^3$/s, Apr. 5, 1977, gage height, 17.11 ft, from rating curve extended above 10,000 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 30 ft$^3$/s, Oct. 14, 1941, Dec. 24, 1943, gage height, 2.16 ft; minimum daily, 40 ft$^3$/s, Dec. 27, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 3,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | Unknown | *3,970 | *8.13 | July 27 | 2100 | 3,750 | 7.93 |

Minimum daily discharge, 97 ft$^3$/s, Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 202 | 106 | 298 | 479 | 1800 | 900 | 340 | 325 | 329 | 148 | 466 | 179 |
| 2 | 139 | 106 | 244 | 650 | 3300 | 750 | 325 | 307 | 307 | 147 | 696 | 165 |
| 3 | 119 | 106 | 224 | 1200 | 3000 | 650 | 310 | 391 | 292 | 174 | 493 | 155 |
| 4 | 109 | 104 | 200 | 1530 | 1900 | 580 | 300 | 351 | 265 | 177 | 377 | 150 |
| 5 | 104 | 126 | 193 | 1430 | 1200 | 540 | 290 | 327 | 246 | 155 | 310 | 145 |
| 6 | 102 | 159 | 270 | 1010 | 900 | 480 | 417 | 303 | 252 | 200 | 280 | 142 |
| 7 | 100 | 130 | 234 | 788 | 680 | 430 | 419 | 283 | 244 | 172 | 271 | 145 |
| 8 | 102 | 116 | 224 | 634 | 580 | 400 | 483 | 262 | 263 | 145 | 258 | 137 |
| 9 | 105 | 111 | 217 | 521 | 520 | 430 | 474 | 242 | 224 | 132 | 227 | 132 |
| 10 | 107 | 112 | 219 | 449 | 510 | 390 | 455 | 232 | 200 | 129 | 214 | 130 |
| 11 | 103 | 307 | 271 | 414 | 500 | 400 | 438 | 226 | 200 | 167 | 190 | 127 |
| 12 | 99 | 199 | 271 | 363 | 780 | 420 | 414 | 247 | 301 | 133 | 176 | 123 |
| 13 | 98 | 155 | 264 | 319 | 600 | 390 | 390 | 214 | 271 | 212 | 179 | 124 |
| 14 | 97 | 136 | 245 | 304 | 520 | 380 | 374 | 204 | 220 | 214 | 162 | 119 |
| 15 | 99 | 127 | 226 | 288 | 450 | 360 | 366 | 233 | 196 | 152 | 148 | 113 |
| 16 | 105 | 125 | 213 | 254 | 420 | 350 | 419 | 320 | 223 | 372 | 222 | 112 |
| 17 | 103 | 121 | 203 | 284 | 390 | 340 | 444 | 379 | 264 | 214 | 479 | 109 |
| 18 | 101 | 117 | 196 | 262 | 370 | 330 | 397 | 528 | 272 | 165 | 783 | 106 |
| 19 | 99 | 201 | 202 | 250 | 380 | 320 | 366 | 441 | 244 | 142 | 501 | 103 |
| 20 | 98 | 200 | 370 | 216 | 400 | 300 | 345 | 362 | 213 | 134 | 381 | 101 |
| 21 | 98 | 161 | 375 | 153 | 450 | 290 | 333 | 315 | 194 | 124 | 319 | 101 |
| 22 | 104 | 143 | 449 | 170 | 520 | 300 | 307 | 299 | 179 | 187 | 274 | 100 |
| 23 | 135 | 135 | 450 | 200 | 681 | 330 | 290 | 1750 | 168 | 149 | 242 | 99 |
| 24 | 132 | 131 | 399 | 170 | 910 | 370 | 278 | 1930 | 267 | 130 | 252 | 101 |
| 25 | 115 | 126 | 754 | 190 | 1020 | 400 | 276 | 2020 | 200 | 164 | 334 | 105 |
| 26 | 108 | 122 | 789 | 175 | 1200 | 440 | 254 | 1290 | 170 | 221 | 264 | 101 |
| 27 | 104 | 117 | 606 | 150 | 1100 | 420 | 247 | 858 | 158 | 1270 | 239 | 118 |
| 28 | 106 | 399 | 484 | 165 | 1000 | 400 | 362 | 638 | 147 | 1810 | 222 | 109 |
| 29 | 133 | 526 | 406 | 160 | --- | 390 | 430 | 525 | 140 | 814 | 200 | 103 |
| 30 | 129 | 366 | 360 | 150 | --- | 370 | 365 | 430 | 138 | 542 | 191 | 99 |
| 31 | 114 | --- | 446 | 200 | --- | 350 | --- | 370 | --- | 455 | 203 | --- |
| TOTAL | 3469 | 5090 | 10302 | 13528 | 26081 | 13200 | 10908 | 16602 | 6787 | 9350 | 9553 | 3653 |
| MEAN | 112 | 170 | 332 | 436 | 931 | 426 | 364 | 536 | 226 | 302 | 308 | 122 |
| MAX | 202 | 526 | 789 | 1530 | 3300 | 900 | 483 | 2020 | 329 | 1810 | 783 | 179 |
| MIN | 97 | 104 | 193 | 150 | 370 | 290 | 247 | 204 | 138 | 124 | 148 | 99 |
| CFSM | .37 | .56 | 1.10 | 1.45 | 3.09 | 1.42 | 1.21 | 1.78 | .75 | 1.00 | 1.02 | .41 |
| IN. | .43 | .63 | 1.27 | 1.67 | 3.22 | 1.63 | 1.35 | 2.05 | .84 | 1.16 | 1.18 | .45 |

CAL YR 1984 TOTAL 180399 MEAN 493 MAX 9400 MIN 88 CFSM 1.64 IN. 22.30
WTR YR 1985 TOTAL 128523 MEAN 352 MAX 3300 MIN 97 CFSM 1.17 IN. 15.88

## 03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA--Continued

### WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1949 to September 1950, October 1967 to September 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) | PH (STAND-ARD UNITS) | PH LAB (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | BARO-METRIC PRES-SURE (MM OF HG) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 03... | 10:15 | 122 | 205 | 196 | 8.1 | 7.6 | 10.0 | 718 | 2 | 9.1 |
| NOV | | | | | | | | | | |
| 15... | 11:15 | 128 | 185 | 185 | 7.8 | 7.6 | 6.5 | 718 | 6 | 11.6 |
| JAN | | | | | | | | | | |
| 03... | 09:55 | 878 | 92 | 95 | 7.5 | 7.4 | 7.5 | 722 | 5 | 10.8 |
| FEB | | | | | | | | | | |
| 22... | 08:30 | 501 | 130 | 138 | 7.5 | 7.3 | 5.5 | 725 | 10 | 12.8 |
| APR | | | | | | | | | | |
| 05... | 10:00 | 328 | 122 | 125 | 7.9 | 7.4 | 13.0 | 709 | 5 | 10.4 |
| MAY | | | | | | | | | | |
| 16... | 08:00 | 338 | 130 | 132 | 7.6 | 7.2 | 16.0 | 714 | 30 | 8.4 |
| JUL | | | | | | | | | | |
| 03... | 10:30 | 179 | 145 | 144 | 8.1 | 7.8 | 17.0 | 718 | 10 | 9.1 |
| AUG | | | | | | | | | | |
| 16... | 10:00 | 235 | 148 | 148 | 8.1 | 7.8 | 21.0 | 717 | 15 | 8.2 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS NONCAR-BONATE (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 03... | 86 | 86 | 86 | 22 | 7.6 | 5.8 | 1.9 | 79 | 16 |
| NOV | | | | | | | | | |
| 15... | 100 | 88 | 88 | 23 | 7.4 | 3.3 | 1.5 | 82 | 9.3 |
| JAN | | | | | | | | | |
| 03... | 95 | 39 | 39 | 10 | 3.5 | 1.6 | 1.1 | 36 | 5.3 |
| FEB | | | | | | | | | |
| 22... | 107 | 58 | 58 | 15 | 5.0 | 3.2 | 1.6 | 53 | 6.6 |
| APR | | | | | | | | | |
| 05... | 106 | 51 | 51 | 13 | 4.4 | 4.1 | 1.5 | 46 | 10 |
| MAY | | | | | | | | | |
| 16... | 91 | 56 | 56 | 14 | 5.0 | 3.3 | 1.9 | 52 | 7.7 |
| JUL | | | | | | | | | |
| 03... | 100 | 68 | 68 | 17 | 6.3 | 1.7 | 1.4 | 66 | 4.5 |
| AUG | | | | | | | | | |
| 16... | 98 | 63 | 63 | 16 | 5.7 | 4.1 | 1.6 | 66 | 9.2 |

## 03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA--Continued

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NITRITE DISSOLVED (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|
| OCT 03... | 4.6 | <0.1 | 6.4 | 98 | 110 | <0.01 | 0.33 | 0.02 | 23 |
| NOV 15... | 3.0 | <0.1 | 6.1 | 94 | 100 | <0.01 | 0.44 | <0.01 | 23 |
| JAN 03... | 2.3 | <0.1 | 5.9 | 54 | 51 | 0.01 | 0.52 | 0.04 | 31 |
| FEB 22... | 4.9 | <0.1 | 5.4 | 77 | 74 | <0.01 | 0.74 | 0.05 | 15 |
| APR 05... | 3.3 | 0.1 | 4.4 | 68 | 68 | 0.01 | 0.28 | <0.01 | 16 |
| MAY 16... | 3.3 | <0.1 | 6.0 | 78 | 73 | <0.01 | 0.50 | 0.03 | 41 |
| JUL 03... | 1.9 | <0.1 | 5.7 | 85 | 78 | <0.01 | 0.42 | <0.01 | 16 |
| AUG 16... | 2.7 | <0.1 | 5.1 | 87 | 84 | <0.01 | 0.43 | <0.01 | 29 |

## 03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA

LOCATION.--Lat 36°42'47", long 81°49'08", Washington County, Hydrologic Unit 06010102, on left bank 48 ft downstream from bridge on State Highway 803, 0.9 mi upstream from Cedar Creek, 4.1 mi southeast of Meadowview, and at mile 13.2.

DRAINAGE AREA.--211 mi$^2$.

PERIOD OF RECORD.--October 1931 to September 1953, May 1976 to current year. Monthly discharge only for October 1931, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,820.22 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 21-30. Records good. Prior to 1954, flow regulated by powerplant 0.9 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--31 years, 241 ft$^3$/s, 15.51 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft$^3$/s, Nov. 7, 1977, gage height, 13.41 ft; minimum, 6 ft$^3$/s, Nov. 10, 1933, Dec. 4, 1936, Jan. 21, 22, Feb. 1, 1940, Jan. 8, 1942, Oct. 15, 16, 31, 1943; minimum daily, 7 ft$^3$/s, Nov. 19, 1950.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of 11.8 ft, from floodmark, discharge, 10,000 ft$^3$/s, and flood of Dec. 10, 1972, reached a stage of 11.0 ft, from floodmark, discharge, 8,540 ft$^3$/s, from information by Tennessee Valley Authority. Flood of Mar. 30, 1975, reached a stage of 10.37 ft, discharge, 7,410 ft$^3$/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 2,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 2200 | *3,690 | *7.66 | No other peak equal to or greater than base discharge. | | | |

Minimum daily discharge, 49 ft$^3$/s, Sept. 25, 30.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 101 | 67 | 107 | 582 | 1690 | 392 | 201 | 118 | 120 | 72 | 126 | 72 |
| 2 | 87 | 83 | 94 | 460 | 2450 | 342 | 188 | 117 | 112 | 78 | 173 | 68 |
| 3 | 71 | 82 | 88 | 552 | 1200 | 298 | 182 | 129 | 113 | 85 | 131 | 66 |
| 4 | 66 | 83 | 82 | 936 | 694 | 266 | 176 | 125 | 105 | 97 | 107 | 65 |
| 5 | 64 | 83 | 81 | 965 | 511 | 258 | 167 | 115 | 99 | 82 | 96 | 63 |
| 6 | 62 | 69 | 97 | 554 | 447 | 238 | 185 | 111 | 113 | 81 | 94 | 63 |
| 7 | 61 | 62 | 97 | 395 | 385 | 217 | 184 | 108 | 111 | 80 | 97 | 67 |
| 8 | 61 | 56 | 88 | 315 | 323 | 208 | 277 | 105 | 102 | 73 | 110 | 61 |
| 9 | 65 | 56 | 85 | 258 | 287 | 247 | 282 | 101 | 96 | 70 | 99 | 62 |
| 10 | 64 | 59 | 85 | 222 | 268 | 256 | 253 | 102 | 91 | 70 | 89 | 61 |
| 11 | 61 | 116 | 92 | 203 | 252 | 249 | 232 | 108 | 86 | 72 | 83 | 60 |
| 12 | 61 | 92 | 96 | 184 | 303 | 249 | 214 | 120 | 107 | 69 | 78 | 59 |
| 13 | 59 | 71 | 93 | 165 | 273 | 231 | 198 | 111 | 110 | 67 | 75 | 57 |
| 14 | 59 | 64 | 87 | 155 | 247 | 218 | 188 | 103 | 91 | 113 | 74 | 56 |
| 15 | 59 | 60 | 81 | 150 | 232 | 209 | 182 | 104 | 84 | 84 | 71 | 55 |
| 16 | 60 | 59 | 78 | 154 | 214 | 196 | 212 | 158 | 90 | 125 | 74 | 54 |
| 17 | 60 | 58 | 77 | 140 | 206 | 189 | 224 | 141 | 141 | 87 | 120 | 52 |
| 18 | 60 | 57 | 76 | 137 | 196 | 183 | 198 | 136 | 125 | 74 | 199 | 51 |
| 19 | 57 | 101 | 80 | 131 | 203 | 174 | 184 | 126 | 102 | 69 | 170 | 50 |
| 20 | 58 | 112 | 111 | 126 | 240 | 167 | 174 | 114 | 92 | 67 | 122 | 50 |
| 21 | 58 | 81 | 108 | 90 | 377 | 162 | 166 | 107 | 86 | 64 | 102 | 50 |
| 22 | 62 | 70 | 114 | 100 | 524 | 170 | 156 | 103 | 81 | 67 | 91 | 50 |
| 23 | 77 | 65 | 128 | 110 | 639 | 189 | 147 | 195 | 78 | 66 | 85 | 50 |
| 24 | 72 | 62 | 121 | 95 | 704 | 217 | 142 | 478 | 102 | 63 | 87 | 51 |
| 25 | 68 | 60 | 248 | 105 | 634 | 315 | 140 | 733 | 80 | 70 | 112 | 49 |
| 26 | 62 | 58 | 305 | 100 | 734 | 270 | 133 | 398 | 76 | 90 | 110 | 50 |
| 27 | 58 | 57 | 203 | 85 | 631 | 234 | 129 | 263 | 72 | 198 | 93 | 58 |
| 28 | 58 | 96 | 160 | 95 | 474 | 217 | 146 | 205 | 70 | 222 | 86 | 61 |
| 29 | 65 | 214 | 137 | 90 | --- | 206 | 138 | 175 | 68 | 140 | 80 | 53 |
| 30 | 69 | 131 | 127 | 85 | --- | 191 | 125 | 148 | 69 | 117 | 75 | 49 |
| 31 | 62 | --- | 413 | 141 | --- | 182 | --- | 131 | --- | 111 | 75 | --- |
| TOTAL | 2007 | 2384 | 3839 | 7880 | 15338 | 7140 | 5523 | 5288 | 2872 | 2823 | 3184 | 1713 |
| MEAN | 64.7 | 79.5 | 124 | 254 | 548 | 230 | 184 | 171 | 95.7 | 91.1 | 103 | 57.1 |
| MAX | 101 | 214 | 413 | 965 | 2450 | 392 | 282 | 733 | 141 | 222 | 199 | 72 |
| MIN | 57 | 56 | 76 | 85 | 196 | 162 | 125 | 101 | 68 | 63 | 71 | 49 |
| CFSM | .31 | .38 | .59 | 1.20 | 2.60 | 1.09 | .87 | .81 | .45 | .43 | .49 | .27 |
| IN. | .35 | .42 | .68 | 1.39 | 2.70 | 1.26 | .97 | .93 | .51 | .50 | .56 | .30 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 91674 | MEAN | 250 | MAX | 4100 | MIN | 56 | CFSM | 1.18 | IN. | 16.16 |
| WTR YR 1985 | TOTAL | 59991 | MEAN | 164 | MAX | 2450 | MIN | 49 | CFSM | .78 | IN. | 10.58 |

## 03478400 BEAVER CREEK AT BRISTOL, VA

**LOCATION.**--Lat 36°37'54", long 82°08'02", Bristol City, Hydrologic Unit 06010102, on right bank 50 ft upstream from bridge on State Highway 1405, 75 ft downstream from Goose Creek, 0.9 mi downstream from Clear Creek, 3.7 mi northeast of Bristol, VA post office, and at mile 20.6.

**DRAINAGE AREA.**--27.7 mi².

**PERIOD OF RECORD.**--July 1957 to current year. Published as "near Bristol" prior to October 1974.

**GAGE.**--Water-stage recorder. Datum of gage is 1,780.98 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--No estimated daily discharges. Records fair. Small diurnal fluctuation at low flow caused by withdrawal of water, which is returned to stream 600 ft upstream from station, for car-washing operation. Since September 1965, some regulation at high flow by flood-control reservoirs, capacity, 7,600 acre-ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--28 years, 35.3 ft³/s, 17.31 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 1,600 ft³/s, Oct. 2, 1977, gage height, 9.94 ft, from rating curve extended above 390 ft³/s on basis of slope-area measurement of peak flow; minimum, 3.4 ft³/s, Dec. 30, 1963; minimum daily, 7.4 ft³/s, Sept. 28, 29, Oct. 5, 15, 18, 19, 23, 24, 1969.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood in 1936 reached a stage of about 12 ft.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 216 ft³/s, Feb. 1, gage height, 4.89 ft; minimum daily, 10 ft³/s, Nov. 14, July 14, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 12 | 12 | 21 | 157 | 37 | 22 | 17 | 15 | 13 | 38 | 12 |
| 2 | 45 | 12 | 12 | 37 | 136 | 36 | 21 | 18 | 16 | 15 | 27 | 12 |
| 3 | 31 | 11 | 12 | 36 | 87 | 35 | 20 | 19 | 16 | 14 | 21 | 12 |
| 4 | 14 | 12 | 11 | 44 | 66 | 34 | 20 | 17 | 16 | 13 | 19 | 12 |
| 5 | 13 | 13 | 12 | 42 | 59 | 33 | 21 | 16 | 15 | 12 | 17 | 12 |
| 6 | 13 | 12 | 14 | 35 | 55 | 31 | 23 | 16 | 15 | 12 | 17 | 12 |
| 7 | 13 | 12 | 13 | 31 | 51 | 31 | 22 | 16 | 17 | 11 | 17 | 11 |
| 8 | 13 | 11 | 12 | 29 | 45 | 30 | 22 | 16 | 16 | 11 | 16 | 11 |
| 9 | 13 | 11 | 12 | 27 | 42 | 31 | 21 | 16 | 15 | 11 | 15 | 11 |
| 10 | 12 | 13 | 12 | 25 | 40 | 29 | 20 | 16 | 14 | 12 | 15 | 11 |
| 11 | 12 | 16 | 12 | 25 | 39 | 29 | 20 | 16 | 15 | 13 | 13 | 11 |
| 12 | 12 | 12 | 12 | 23 | 45 | 28 | 20 | 16 | 20 | 11 | 13 | 11 |
| 13 | 12 | 11 | 12 | 22 | 39 | 26 | 19 | 16 | 16 | 11 | 13 | 12 |
| 14 | 12 | 10 | 11 | 22 | 37 | 26 | 19 | 15 | 15 | 10 | 13 | 12 |
| 15 | 12 | 11 | 11 | 21 | 35 | 26 | 20 | 15 | 14 | 14 | 12 | 12 |
| 16 | 12 | 11 | 11 | 20 | 34 | 25 | 20 | 16 | 14 | 27 | 13 | 12 |
| 17 | 12 | 11 | 11 | 20 | 33 | 25 | 19 | 17 | 14 | 14 | 28 | 12 |
| 18 | 12 | 11 | 11 | 20 | 32 | 24 | 18 | 16 | 17 | 12 | 22 | 12 |
| 19 | 11 | 22 | 13 | 19 | 35 | 23 | 17 | 14 | 14 | 12 | 17 | 11 |
| 20 | 12 | 14 | 15 | 19 | 39 | 23 | 17 | 14 | 13 | 12 | 16 | 12 |
| 21 | 11 | 12 | 13 | 18 | 42 | 23 | 17 | 14 | 13 | 12 | 15 | 11 |
| 22 | 12 | 11 | 15 | 18 | 42 | 24 | 16 | 15 | 13 | 13 | 14 | 11 |
| 23 | 13 | 11 | 13 | 18 | 42 | 24 | 16 | 28 | 13 | 12 | 14 | 11 |
| 24 | 14 | 11 | 13 | 17 | 41 | 26 | 17 | 33 | 12 | 11 | 16 | 12 |
| 25 | 13 | 11 | 25 | 17 | 41 | 24 | 17 | 26 | 12 | 13 | 16 | 11 |
| 26 | 13 | 11 | 18 | 16 | 44 | 23 | 16 | 21 | 12 | 20 | 14 | 12 |
| 27 | 13 | 11 | 16 | 16 | 40 | 22 | 18 | 19 | 12 | 39 | 14 | 11 |
| 28 | 14 | 20 | 14 | 16 | 38 | 22 | 23 | 19 | 11 | 24 | 13 | 11 |
| 29 | 13 | 15 | 13 | 16 | --- | 22 | 20 | 18 | 11 | 20 | 13 | 11 |
| 30 | 13 | 13 | 13 | 15 | --- | 22 | 18 | 17 | 15 | 17 | 14 | 10 |
| 31 | 12 | --- | 24 | 20 | --- | 22 | --- | 16 | --- | 17 | 13 | --- |
| TOTAL | 456 | 374 | 418 | 725 | 1436 | 836 | 579 | 548 | 431 | 458 | 518 | 344 |
| MEAN | 14.7 | 12.5 | 13.5 | 23.4 | 51.3 | 27.0 | 19.3 | 17.7 | 14.4 | 14.8 | 16.7 | 11.5 |
| MAX | 45 | 22 | 25 | 44 | 157 | 37 | 23 | 33 | 20 | 39 | 38 | 12 |
| MIN | 11 | 10 | 11 | 15 | 32 | 22 | 16 | 14 | 11 | 10 | 12 | 10 |
| CFSM | .53 | .45 | .49 | .84 | 1.85 | .97 | .70 | .64 | .52 | .53 | .60 | .42 |
| IN. | .61 | .50 | .56 | .97 | 1.93 | 1.12 | .78 | .74 | .58 | .62 | .70 | .46 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 12927 | MEAN | 35.3 | MAX | 353 | MIN | 10 | CFSM | 1.27 | IN. | 17.36 |
| WTR YR 1985 | TOTAL | 7123 | MEAN | 19.5 | MAX | 157 | MIN | 10 | CFSM | .70 | IN. | 9.57 |

## 03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA

**LOCATION.**--Lat 36°53'48", long 81°44'47", Smyth County, Hydrologic Unit 06010101, on right bank 0.5 mi upstream from Cedar Branch bridge, 1.5 mi northeast of Saltville, 7.8 mi downstream from Laurel Creek, and at mile 85.0.

**DRAINAGE AREA.**--222 mi$^2$.

**PERIOD OF RECORD.**--June 1907 to December 1908 (published as "at Saltville"), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

**REVISED RECORDS.**--WSP 758: Drainage area. WSP 1113: 1944-47. WSP 1306: 1907(M), 1921-22(M), 1924-30(M), 1932-34(M), drainage area at site used 1907-8. WSP 1726: 1947, monthly and yearly runoff.

**GAGE.**--Water-stage recorder. Datum of gage is 1,703.53 ft above National Geodetic Vertical Datum of 1929. June 11, 1907, to Nov. 12, 1908, nonrecording gage on highway bridge 2.1 mi downstream at different datum. Nov. 2, 1920, to May 23, 1934, nonrecording gage on highway bridge 0.5 mi downstream at datum 7.74 ft lower.

**REMARKS.**--Estimated daily discharges: Jan. 20-30. Records fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--66 years, 300 ft$^3$/s, 18.35 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 16,500 ft$^3$/s, Jan. 29, 1957, gage height, 13.20 ft; maximum gage height, 13.57 ft, Nov. 6, 1977; minimum discharge, 1.0 ft$^3$/s, Oct. 15, 16, 1947, gage height, 0.13 ft, flow retarded by mine cave-in; minimum daily, 2.0 ft$^3$/s, Oct. 15, 1947.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 3,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 2035 | *5,150 | *7.25 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 22 ft$^3$/s, Sept. 23, gage height, 0.64 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 49 | 34 | 111 | 839 | 2570 | 482 | 254 | 112 | 150 | 53 | 315 | 65 |
| 2 | 55 | 32 | 85 | 808 | 3160 | 402 | 233 | 110 | 132 | 58 | 783 | 59 |
| 3 | 48 | 31 | 73 | 883 | 1430 | 336 | 222 | 130 | 130 | 61 | 321 | 53 |
| 4 | 39 | 32 | 63 | 1210 | 797 | 292 | 213 | 124 | 112 | 63 | 182 | 49 |
| 5 | 35 | 35 | 58 | 1250 | 560 | 271 | 198 | 109 | 106 | 58 | 124 | 45 |
| 6 | 32 | 39 | 68 | 693 | 489 | 241 | 220 | 104 | 186 | 53 | 102 | 42 |
| 7 | 31 | 42 | 65 | 476 | 420 | 210 | 229 | 100 | 153 | 51 | 100 | 40 |
| 8 | 29 | 39 | 67 | 362 | 340 | 200 | 293 | 94 | 126 | 48 | 297 | 40 |
| 9 | 31 | 36 | 64 | 283 | 284 | 283 | 323 | 88 | 112 | 45 | 243 | 38 |
| 10 | 34 | 37 | 66 | 234 | 270 | 313 | 299 | 84 | 96 | 43 | 152 | 38 |
| 11 | 32 | 82 | 81 | 205 | 252 | 307 | 281 | 84 | 234 | 46 | 112 | 39 |
| 12 | 31 | 98 | 112 | 179 | 300 | 307 | 267 | 84 | 262 | 52 | 87 | 36 |
| 13 | 34 | 70 | 108 | 142 | 280 | 277 | 250 | 79 | 269 | 51 | 72 | 33 |
| 14 | 30 | 53 | 92 | 140 | 280 | 252 | 236 | 73 | 189 | 99 | 62 | 32 |
| 15 | 31 | 45 | 78 | 141 | 240 | 235 | 225 | 69 | 144 | 65 | 54 | 31 |
| 16 | 32 | 42 | 71 | 118 | 211 | 213 | 348 | 131 | 130 | 58 | 59 | 29 |
| 17 | 32 | 40 | 65 | 141 | 195 | 202 | 380 | 183 | 124 | 49 | 117 | 28 |
| 18 | 33 | 39 | 61 | 117 | 165 | 192 | 309 | 304 | 111 | 43 | 386 | 27 |
| 19 | 33 | 114 | 65 | 109 | 182 | 176 | 266 | 301 | 99 | 38 | 437 | 26 |
| 20 | 33 | 192 | 73 | 90 | 224 | 164 | 235 | 199 | 89 | 35 | 286 | 26 |
| 21 | 34 | 116 | 83 | 80 | 341 | 157 | 212 | 150 | 81 | 33 | 198 | 25 |
| 22 | 37 | 80 | 98 | 85 | 529 | 174 | 192 | 127 | 74 | 31 | 147 | 24 |
| 23 | 41 | 63 | 140 | 100 | 806 | 241 | 174 | 532 | 70 | 31 | 115 | 24 |
| 24 | 43 | 54 | 147 | 90 | 1000 | 384 | 162 | 1480 | 66 | 31 | 103 | 25 |
| 25 | 42 | 49 | 268 | 95 | 936 | 617 | 155 | 1200 | 64 | 35 | 158 | 24 |
| 26 | 38 | 45 | 379 | 84 | 1060 | 464 | 143 | 634 | 60 | 47 | 149 | 26 |
| 27 | 36 | 42 | 252 | 75 | 864 | 376 | 131 | 414 | 55 | 77 | 116 | 26 |
| 28 | 37 | 81 | 184 | 80 | 623 | 331 | 145 | 305 | 50 | 94 | 97 | 31 |
| 29 | 37 | 210 | 147 | 78 | --- | 295 | 146 | 269 | 47 | 77 | 84 | 33 |
| 30 | 35 | 154 | 125 | 76 | --- | 258 | 123 | 210 | 46 | 60 | 75 | 28 |
| 31 | 36 | --- | 608 | 205 | --- | 235 | --- | 172 | --- | 58 | 70 | --- |
| TOTAL | 1120 | 2026 | 3957 | 9468 | 18808 | 8087 | 6864 | 8055 | 3567 | 1643 | 5603 | 1042 |
| MEAN | 36.1 | 67.5 | 128 | 305 | 672 | 287 | 229 | 260 | 119 | 53.0 | 181 | 34.7 |
| MAX | 55 | 210 | 608 | 1250 | 3160 | 617 | 380 | 1480 | 269 | 99 | 783 | 65 |
| MIN | 29 | 31 | 58 | 75 | 165 | 157 | 123 | 69 | 46 | 31 | 54 | 24 |
| CFSM | .16 | .30 | .58 | 1.37 | 3.03 | 1.29 | 1.03 | 1.17 | .54 | .24 | .82 | .16 |
| IN. | .19 | .34 | .66 | 1.59 | 3.15 | 1.49 | 1.15 | 1.35 | .60 | .28 | .94 | .17 |

CAL YR 1984 TOTAL 103965 MEAN 284 MAX 5660 MIN 25 CFSM 1.28 IN. 17.42
WTR YR 1985 TOTAL 71040 MEAN 195 MAX 3160 MIN 24 CFSM .88 IN. 11.90

## 03521500 CLINCH RIVER AT RICHLANDS, VA

LOCATION.--Lat 37°05'10", long 81°46'52", Tazewell County, Hydrologic Unit 06010205, on right bank 1.0 mi southeast of Richlands, 1.6 mi downstream from Middle Creek, 2.2 mi upstream from Big Creek, and at mile 321.0.

DRAINAGE AREA.--137 mi$^2$.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 1306: 1946(M), 1948-50(M).

GAGE.--Water-stage recorder. Datum of gage is 1,924.08 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1950, nonrecording gage at bridge 1.1 mi downstream at datum 6.53 ft lower.

REMARKS.--Estimated daily discharges: Jan. 19-30. Records fair. Prior to October 1970, diurnal fluctuation at low flow caused by mill 1.7 mi upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--40 years, 192 ft$^3$/s, 19.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft$^3$/s, Jan. 29, 1957, gage height, 19.3 ft, from floodmark, from rating curve extended above 4,900 ft$^3$/s on basis of contracted-opening measurement of peak flow; minimum, 3.2 ft$^3$/s, Sept. 8, 1955; minimum daily, 8.8 ft$^3$/s, July 6, Sept. 10, 16, 1964; minimum gage height, 0.45 ft, July 2, 3, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1901, reached a stage of 21.3 ft, present site and datum, from floodmark, discharge, 11,500 ft$^3$/s, from report by Tennessee Valley Authority. Flood of Feb. 18, 1944, reached a stage of 13.7 ft, present site and datum, from floodmark, discharge, 5,500 ft$^3$/s, from report by Tennessee Valley Authority.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 1,600 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 1 | 0400 | 1,600 | 5.90 | Feb. 1 | 1900 | *3,680 | *10.38 |

Minimum discharge, 14 ft$^3$/s, Sept. 23, gage height, 0.69 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 49 | 35 | 135 | 395 | 2680 | 277 | 156 | 88 | 107 | 45 | 525 | 52 |
| 2 | 47 | 32 | 102 | 882 | 2090 | 239 | 136 | 89 | 103 | 46 | 612 | 44 |
| 3 | 35 | 30 | 87 | 832 | 1030 | 202 | 130 | 124 | 96 | 46 | 214 | 40 |
| 4 | 29 | 29 | 76 | 911 | 609 | 177 | 124 | 109 | 105 | 46 | 130 | 38 |
| 5 | 26 | 36 | 70 | 980 | 444 | 171 | 115 | 96 | 235 | 42 | 96 | 35 |
| 6 | 25 | 49 | 89 | 550 | 517 | 145 | 133 | 87 | 268 | 40 | 86 | 36 |
| 7 | 24 | 47 | 92 | 384 | 474 | 129 | 128 | 81 | 182 | 39 | 79 | 39 |
| 8 | 24 | 40 | 92 | 285 | 342 | 132 | 155 | 74 | 150 | 37 | 81 | 36 |
| 9 | 26 | 37 | 83 | 219 | 265 | 180 | 155 | 67 | 122 | 34 | 75 | 35 |
| 10 | 29 | 42 | 81 | 186 | 233 | 160 | 152 | 65 | 106 | 36 | 65 | 34 |
| 11 | 29 | 107 | 94 | 168 | 208 | 159 | 151 | 73 | 341 | 47 | 57 | 34 |
| 12 | 26 | 95 | 98 | 144 | 235 | 168 | 146 | 64 | 372 | 45 | 51 | 33 |
| 13 | 24 | 66 | 96 | 127 | 204 | 152 | 139 | 60 | 306 | 68 | 46 | 32 |
| 14 | 23 | 51 | 87 | 120 | 185 | 146 | 134 | 73 | 195 | 79 | 44 | 30 |
| 15 | 24 | 43 | 78 | 110 | 161 | 138 | 131 | 132 | 145 | 54 | 43 | 28 |
| 16 | 25 | 40 | 73 | 103 | 146 | 127 | 210 | 199 | 129 | 52 | 88 | 27 |
| 17 | 25 | 37 | 69 | 102 | 139 | 122 | 218 | 185 | 112 | 44 | 154 | 27 |
| 18 | 25 | 37 | 66 | 97 | 128 | 114 | 183 | 189 | 99 | 36 | 236 | 25 |
| 19 | 24 | 424 | 74 | 85 | 136 | 106 | 164 | 158 | 86 | 33 | 199 | 25 |
| 20 | 31 | 256 | 95 | 70 | 176 | 100 | 148 | 123 | 85 | 30 | 138 | 24 |
| 21 | 31 | 129 | 117 | 65 | 272 | 99 | 136 | 101 | 75 | 29 | 111 | 23 |
| 22 | 36 | 90 | 147 | 75 | 450 | 113 | 125 | 95 | 66 | 31 | 89 | 23 |
| 23 | 50 | 72 | 153 | 80 | 692 | 131 | 115 | 317 | 62 | 45 | 76 | 21 |
| 24 | 57 | 63 | 139 | 70 | 776 | 197 | 109 | 782 | 60 | 37 | 72 | 22 |
| 25 | 45 | 57 | 268 | 80 | 645 | 251 | 108 | 803 | 56 | 37 | 83 | 25 |
| 26 | 37 | 52 | 271 | 70 | 582 | 214 | 98 | 401 | 52 | 70 | 74 | 26 |
| 27 | 35 | 47 | 212 | 62 | 462 | 186 | 96 | 251 | 49 | 116 | 61 | 37 |
| 28 | 38 | 244 | 166 | 68 | 344 | 169 | 114 | 194 | 45 | 98 | 55 | 37 |
| 29 | 49 | 351 | 138 | 64 | --- | 154 | 106 | 197 | 43 | 61 | 50 | 29 |
| 30 | 52 | 184 | 126 | 62 | --- | 139 | 94 | 146 | 43 | 50 | 49 | 25 |
| 31 | 42 | --- | 274 | 170 | --- | 137 | --- | 122 | --- | 55 | 61 | --- |
| TOTAL | 1042 | 2822 | 3748 | 7616 | 14625 | 4934 | 4109 | 5545 | 3895 | 1528 | 3800 | 942 |
| MEAN | 33.6 | 94.1 | 121 | 246 | 522 | 159 | 137 | 179 | 130 | 49.3 | 123 | 31.4 |
| MAX | 57 | 424 | 274 | 980 | 2680 | 277 | 218 | 803 | 372 | 116 | 612 | 52 |
| MIN | 23 | 29 | 66 | 62 | 128 | 99 | 94 | 60 | 43 | 29 | 43 | 21 |
| CFSM | .25 | .69 | .88 | 1.80 | 3.81 | 1.16 | 1.00 | 1.31 | .95 | .36 | .90 | .23 |
| IN. | .28 | .77 | 1.02 | 2.07 | 3.97 | 1.34 | 1.12 | 1.51 | 1.06 | .41 | 1.03 | .26 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1984 | TOTAL | 73352 | MEAN | 200 | MAX | 4360 | MIN | 21 | CFSM | 1.46 | IN. | 19.92 |
| WTR YR 1985 | TOTAL | 54606 | MEAN | 150 | MAX | 2680 | MIN | 21 | CFSM | 1.09 | IN. | 14.83 |

## 03524000 CLINCH RIVER AT CLEVELAND, VA

**LOCATION.**--Lat 36°56'41", long 82°09'18", Russell County, Hydrologic Unit 06010205, on right bank 500 ft upstream from highway bridge at Cleveland, 0.5 mi downstream from Muddy Hollow, 2.3 mi downstream from Weaver Creek, 4.4 mi downstream from Thompson Creek, and at mile 271.6.

**DRAINAGE AREA.**--528 mi$^2$.

**PERIOD OF RECORD.**--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

**REVISED RECORDS.**--WSP 823: Drainage area. WSP 1306: 1921-23(M), 1926(M), 1929-31(M). WSP 1706: 1927(M).

**GAGE.**--Water-stage recorder. Datum of gage is 1,500.24 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1931, nonrecording gage on highway bridge 500 ft downstream at datum 1.0 ft lower.

**REMARKS.**--Estimated daily discharges: Jan. 19-30. Records good. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**AVERAGE DISCHARGE.**--65 years, 710 ft$^3$/s, 18.26 in/yr.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 34,500 ft$^3$/s, Apr. 5, 1977, gage height, 26.40 ft; minimum, 35 ft$^3$/s, Sept. 28, 1964; minimum gage height, 0.96 ft, Feb. 10, 1934.

**EXTREMES FOR CURRENT YEAR.**--Peak discharges equal to or greater than base discharge of 5,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 0130 | *10,000 | *13.66 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 73 ft$^3$/s, Oct. 16, gage height, 1.41 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 112 | 114 | 572 | 1330 | 5980 | 1070 | 537 | 292 | 376 | 173 | 842 | 191 |
| 2 | 130 | 106 | 416 | 2400 | 8150 | 933 | 511 | 279 | 333 | 182 | 2500 | 174 |
| 3 | 131 | 98 | 327 | 3020 | 3940 | 804 | 469 | 392 | 329 | 170 | 1150 | 156 |
| 4 | 112 | 94 | 275 | 2560 | 2370 | 700 | 448 | 427 | 294 | 181 | 652 | 143 |
| 5 | 99 | 95 | 241 | 3320 | 1730 | 656 | 421 | 368 | 308 | 168 | 447 | 136 |
| 6 | 90 | 110 | 259 | 2270 | 1710 | 596 | 461 | 326 | 1280 | 153 | 346 | 130 |
| 7 | 83 | 128 | 304 | 1610 | 1740 | 520 | 484 | 298 | 774 | 143 | 312 | 127 |
| 8 | 83 | 128 | 278 | 1260 | 1400 | 483 | 583 | 274 | 550 | 136 | 297 | 132 |
| 9 | 88 | 122 | 275 | 981 | 1110 | 588 | 614 | 251 | 440 | 136 | 270 | 127 |
| 10 | 93 | 111 | 258 | 790 | 963 | 644 | 581 | 233 | 359 | 129 | 258 | 141 |
| 11 | 110 | 164 | 276 | 691 | 849 | 601 | 556 | 223 | 723 | 145 | 224 | 164 |
| 12 | 96 | 274 | 315 | 601 | 909 | 619 | 538 | 229 | 1240 | 160 | 204 | 136 |
| 13 | 92 | 247 | 328 | 498 | 896 | 589 | 511 | 216 | 1280 | 149 | 184 | 122 |
| 14 | 86 | 182 | 304 | 454 | 743 | 540 | 487 | 201 | 786 | 249 | 169 | 115 |
| 15 | 82 | 149 | 271 | 430 | 678 | 512 | 471 | 197 | 549 | 241 | 154 | 110 |
| 16 | 81 | 135 | 244 | 341 | 594 | 473 | 497 | 394 | 444 | 233 | 183 | 104 |
| 17 | 82 | 121 | 227 | 377 | 577 | 444 | 595 | 525 | 479 | 175 | 598 | 101 |
| 18 | 82 | 114 | 217 | 360 | 527 | 427 | 559 | 476 | 384 | 156 | 878 | 97 |
| 19 | 82 | 877 | 226 | 300 | 546 | 394 | 501 | 448 | 327 | 132 | 814 | 96 |
| 20 | 95 | 1260 | 269 | 250 | 699 | 370 | 465 | 373 | 284 | 118 | 792 | 96 |
| 21 | 120 | 618 | 327 | 230 | 981 | 353 | 430 | 317 | 263 | 110 | 516 | 137 |
| 22 | 129 | 376 | 421 | 250 | 1380 | 369 | 401 | 306 | 236 | 109 | 392 | 125 |
| 23 | 140 | 272 | 501 | 280 | 1960 | 432 | 371 | 494 | 219 | 114 | 313 | 93 |
| 24 | 183 | 221 | 486 | 250 | 2180 | 564 | 349 | 1690 | 209 | 123 | 282 | 93 |
| 25 | 184 | 193 | 826 | 270 | 1980 | 844 | 337 | 1920 | 201 | 135 | 354 | 93 |
| 26 | 141 | 173 | 1100 | 240 | 1790 | 805 | 325 | 1410 | 183 | 193 | 316 | 96 |
| 27 | 119 | 159 | 868 | 210 | 1590 | 692 | 307 | 925 | 171 | 514 | 267 | 96 |
| 28 | 108 | 374 | 679 | 230 | 1290 | 627 | 345 | 681 | 158 | 575 | 226 | 100 |
| 29 | 115 | 1210 | 546 | 220 | --- | 581 | 376 | 596 | 149 | 338 | 199 | 114 |
| 30 | 136 | 835 | 465 | 210 | --- | 529 | 329 | 522 | 154 | 233 | 187 | 108 |
| 31 | 123 | --- | 720 | 497 | --- | 490 | --- | 414 | --- | 196 | 197 | --- |
| TOTAL | 3407 | 9060 | 12821 | 26730 | 49262 | 18249 | 13859 | 15697 | 13482 | 5969 | 14523 | 3653 |
| MEAN | 110 | 302 | 414 | 862 | 1759 | 589 | 462 | 506 | 449 | 193 | 468 | 122 |
| MAX | 184 | 1260 | 1100 | 3320 | 8150 | 1070 | 614 | 1920 | 1280 | 575 | 2500 | 191 |
| MIN | 81 | 94 | 217 | 210 | 527 | 353 | 307 | 197 | 149 | 109 | 154 | 93 |
| CFSM | .21 | .57 | .78 | 1.63 | 3.33 | 1.12 | .87 | .96 | .85 | .37 | .89 | .23 |
| IN. | .24 | .64 | .90 | 1.88 | 3.47 | 1.29 | .98 | 1.11 | .95 | .42 | 1.02 | .26 |

CAL YR 1984 TOTAL 270040 MEAN 738 MAX 12700 MIN 70 CFSM 1.40 IN. 19.03
WTR YR 1985 TOTAL 186712 MEAN 512 MAX 8150 MIN 81 CFSM .97 IN. 13.15

## 03528000 CLINCH RIVER ABOVE TAZEWELL, TN

LOCATION.--Lat 36°25'30", long 83°23'54", Claiborne County, Hydrologic Unit 06010205, on right bank 0.4 mi upstream from Grissom Island, 4.6 mi downstream from Big War Creek, 10 mi east of Tazewell, and at mile 159.8.

DRAINAGE AREA.--1,474 mi².

PERIOD OF RECORD.--October 1918 to current year. Published as "near Lone Mountain" October 1918 to September 1927; as "near Tazewell" August 1927 to December 1936; and as "above Tazewell" July 1935 to current year. Prior to April 1919 monthly discharge only, published in WSP 1306. Gage-height record "near Tazewell" January 1937 to July 1941.

REVISED RECORDS.--WSP 803: Drainage area at site "near Tazewell". WSP 1306: Drainage area at site "near Lone Mountain". WSP 1336: 1928.

GAGE.--Water-stage recorder. Datum of gage is 1,060.7 ft above National Geodetic Vertical Datum of 1929. Apr. 1, 1919, to Sept. 30, 1927, nonrecording gage on railroad bridge 23.3 mi downstream at datum 102.7 ft lower. Aug. 8, 1927, to July 16, 1941, water-stage recorder at site 8.0 mi downstream at datum 47.2 ft lower. Water-stage recorder at present site and datum since July 29, 1935.

REMARKS.--Estimated daily discharges: Jan. 22-30. Records good.

AVERAGE DISCHARGE.--67 years, 2,089 ft³/s, 19.25 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,100 ft³/s, Apr. 5, 1977, gage height, 29.32 ft, from floodmarks; minimum, 108 ft³/s, Sept. 11, 1925; minimum gage height, at present site and datum, 0.33 ft, Sept. 20, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of about 24 ft, present site and datum, from information by local resident; discharge, about 66,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 14,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft³/s) | Gage Height (ft) | Date | Time | Discharge (ft³/s) | Gage Height (ft) |
|---|---|---|---|---|---|---|---|
| Feb. 2 | 2300 | *22,500 | *12.66 | No other peak equal to or greater than base discharge. | | | |

Minimum discharge, 195 ft³/s, Oct. 1, 2.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 197 | 339 | 2060 | 2580 | 5560 | 3070 | 1460 | 1180 | 874 | 354 | 701 | 574 |
| 2 | 211 | 339 | 1550 | 4200 | 19100 | 2650 | 1520 | 1040 | 789 | 376 | 1770 | 543 |
| 3 | 234 | 321 | 1240 | 6180 | 19700 | 2320 | 1480 | 1030 | 808 | 433 | 4360 | 497 |
| 4 | 250 | 305 | 1030 | 6690 | 10300 | 2040 | 1390 | 1400 | 728 | 516 | 2640 | 452 |
| 5 | 253 | 304 | 884 | 6280 | 5920 | 1870 | 1300 | 1350 | 678 | 509 | 1590 | 412 |
| 6 | 248 | 320 | 902 | 6720 | 4760 | 1700 | 2180 | 1150 | 671 | 448 | 1120 | 385 |
| 7 | 232 | 325 | 1030 | 4990 | 4470 | 1540 | 2460 | 997 | 773 | 427 | 880 | 373 |
| 8 | 222 | 333 | 1070 | 3600 | 4170 | 1400 | 2360 | 891 | 1650 | 389 | 737 | 360 |
| 9 | 227 | 340 | 1020 | 2800 | 3450 | 1360 | 2370 | 803 | 1120 | 357 | 650 | 372 |
| 10 | 223 | 353 | 928 | 2250 | 2830 | 1340 | 2280 | 731 | 876 | 342 | 611 | 349 |
| 11 | 212 | 433 | 860 | 1900 | 2460 | 1420 | 2040 | 679 | 802 | 436 | 553 | 341 |
| 12 | 210 | 516 | 805 | 1650 | 3260 | 1430 | 1820 | 637 | 1190 | 397 | 535 | 367 |
| 13 | 208 | 539 | 773 | 1450 | 3820 | 1390 | 1650 | 640 | 2860 | 350 | 496 | 505 |
| 14 | 211 | 579 | 767 | 1280 | 3150 | 1370 | 1530 | 620 | 2540 | 359 | 477 | 396 |
| 15 | 215 | 578 | 752 | 1160 | 2600 | 1290 | 1450 | 588 | 1790 | 411 | 406 | 340 |
| 16 | 214 | 520 | 712 | 1070 | 2310 | 1220 | 1430 | 555 | 1270 | 358 | 377 | 311 |
| 17 | 212 | 493 | 668 | 988 | 2040 | 1160 | 1360 | 531 | 994 | 678 | 498 | 295 |
| 18 | 210 | 470 | 626 | 963 | 1910 | 1100 | 1290 | 695 | 902 | 696 | 1110 | 285 |
| 19 | 214 | 1080 | 616 | 950 | 1930 | 1040 | 1300 | 906 | 1100 | 492 | 1890 | 273 |
| 20 | 244 | 3620 | 645 | 876 | 2430 | 988 | 1200 | 842 | 905 | 390 | 1580 | 264 |
| 21 | 294 | 3060 | 869 | 670 | 3050 | 944 | 1120 | 776 | 743 | 343 | 1900 | 255 |
| 22 | 340 | 1830 | 1080 | 653 | 3580 | 948 | 1050 | 699 | 648 | 312 | 1400 | 250 |
| 23 | 532 | 1220 | 1450 | 653 | 4260 | 1040 | 987 | 676 | 583 | 317 | 1000 | 244 |
| 24 | 778 | 920 | 1680 | 674 | 5230 | 1290 | 937 | 757 | 552 | 296 | 826 | 242 |
| 25 | 784 | 752 | 1800 | 767 | 5480 | 1640 | 893 | 2260 | 564 | 298 | 943 | 242 |
| 26 | 707 | 646 | 2440 | 804 | 4900 | 1820 | 847 | 2960 | 508 | 274 | 1300 | 242 |
| 27 | 538 | 577 | 2720 | 782 | 4230 | 1890 | 816 | 2470 | 462 | 333 | 1240 | 241 |
| 28 | 443 | 1000 | 2240 | 752 | 3660 | 1720 | 836 | 1750 | 426 | 645 | 953 | 237 |
| 29 | 388 | 1640 | 1790 | 709 | --- | 1580 | 1080 | 1330 | 391 | 1530 | 766 | 237 |
| 30 | 357 | 2170 | 1500 | 694 | --- | 1460 | 1410 | 1120 | 365 | 1070 | 646 | 237 |
| 31 | 344 | --- | 1400 | 749 | --- | 1380 | --- | 976 | --- | 789 | 601 | --- |
| TOTAL | 9952 | 25922 | 37907 | 66484 | 140560 | 47410 | 43846 | 33039 | 28562 | 14925 | 34556 | 10121 |
| MEAN | 321 | 864 | 1223 | 2145 | 5020 | 1529 | 1462 | 1066 | 952 | 481 | 1115 | 337 |
| MAX | 784 | 3620 | 2720 | 6720 | 19700 | 3070 | 2460 | 2960 | 2860 | 1530 | 4360 | 574 |
| MIN | 197 | 304 | 616 | 653 | 1910 | 944 | 816 | 531 | 365 | 274 | 377 | 237 |
| CFSM | .22 | .59 | .83 | 1.46 | 3.41 | 1.04 | .99 | .72 | .65 | .33 | .76 | .23 |
| IN. | .25 | .65 | .96 | 1.68 | 3.55 | 1.20 | 1.11 | .83 | .72 | .38 | .87 | .26 |

CAL YR 1984 TOTAL 761710 MEAN 2081 MAX 39500 MIN 197 CFSM 1.41 IN. 19.22
WTR YR 1985 TOTAL 493284 MEAN 1351 MAX 19700 MIN 197 CFSM .92 IN. 12.45

## 03531500 POWELL RIVER NEAR JONESVILLE, VA

LOCATION.--Lat 36°39'43", long 83°05'42", Lee County, Hydrologic Unit 06010206, on right bank 175 ft downstream from highway bridge, 2 mi southeast of Jonesville, 10 mi upstream from Wallen Creek, and at mile 143.1.

DRAINAGE AREA.--319 mi$^2$.

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1033: 1932-44. WSP 1436: 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,259.08 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-11 and July 23 to Aug. 14. Records good except those for periods of no gage-height record, Oct. 1-11 and July 23 to Aug. 14, which are fair. Tennessee Valley Authority gage-height Automatic Data Acquisition System at station, called at 6-hour intervals by computer at Knoxville, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 538 ft$^3$/s, 22.90 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft$^3$/s, Apr. 5, 1977, gage height, 44.32 ft, from floodmark, from rating curve extended above 20,000 ft$^3$/s on basis of slope-area measurement of peak flow; minimum, 17 ft$^3$/s, Sept. 19, 20, 1954, and as result of storage behind temporary dam Oct. 18, 1961; minimum gage height, 0.68 ft, Oct. 18, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges equal to or greater than base discharge of 5,000 ft$^3$/s and maximum (*):

| Date | Time | Discharge (ft$^3$/s) | Gage height (ft) | Date | Time | Discharge (ft$^3$/s) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Nov. 19 | 1500 | 5,290 | 10.59 | Feb. 1 | 2130 | *5,640 | *11.14 |

Minimum discharge, 40 ft$^3$/s, Oct. 18, gage height, 1.16 ft.

### DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
### MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70 | 112 | 643 | 1510 | 3390 | 754 | 519 | 526 | 230 | 89 | 300 | 156 |
| 2 | 450 | 104 | 481 | 1710 | 3920 | 664 | 467 | 450 | 206 | 100 | 900 | 111 |
| 3 | 170 | 100 | 409 | 1610 | 2100 | 566 | 439 | 562 | 281 | 140 | 400 | 93 |
| 4 | 75 | 102 | 351 | 1450 | 1380 | 504 | 418 | 477 | 250 | 172 | 300 | 85 |
| 5 | 58 | 112 | 306 | 1720 | 1090 | 478 | 393 | 396 | 204 | 151 | 240 | 79 |
| 6 | 52 | 149 | 379 | 1340 | 1180 | 425 | 945 | 345 | 201 | 123 | 200 | 77 |
| 7 | 48 | 159 | 413 | 1050 | 1100 | 377 | 1020 | 310 | 198 | 111 | 180 | 81 |
| 8 | 50 | 138 | 362 | 835 | 931 | 355 | 957 | 277 | 201 | 99 | 150 | 82 |
| 9 | 55 | 120 | 349 | 662 | 776 | 387 | 838 | 247 | 174 | 89 | 120 | 75 |
| 10 | 130 | 113 | 322 | 553 | 691 | 361 | 719 | 226 | 155 | 90 | 100 | 73 |
| 11 | 70 | 160 | 314 | 514 | 625 | 341 | 622 | 212 | 512 | 174 | 90 | 130 |
| 12 | 56 | 200 | 296 | 445 | 1510 | 379 | 544 | 205 | 803 | 156 | 82 | 129 |
| 13 | 49 | 181 | 277 | 380 | 1370 | 406 | 481 | 203 | 761 | 109 | 75 | 87 |
| 14 | 46 | 156 | 259 | 355 | 1020 | 377 | 443 | 208 | 473 | 88 | 70 | 76 |
| 15 | 47 | 142 | 235 | 345 | 855 | 363 | 420 | 199 | 328 | 81 | 66 | 72 |
| 16 | 44 | 171 | 219 | 287 | 707 | 340 | 435 | 202 | 255 | 88 | 69 | 70 |
| 17 | 43 | 199 | 209 | 307 | 635 | 326 | 384 | 233 | 211 | 155 | 390 | 66 |
| 18 | 42 | 179 | 205 | 299 | 564 | 315 | 345 | 387 | 303 | 93 | 868 | 64 |
| 19 | 45 | 3190 | 236 | 277 | 627 | 295 | 322 | 401 | 279 | 76 | 461 | 62 |
| 20 | 115 | 1950 | 551 | 257 | 898 | 278 | 309 | 289 | 205 | 68 | 279 | 65 |
| 21 | 290 | 862 | 641 | 181 | 1090 | 268 | 299 | 234 | 175 | 66 | 240 | 63 |
| 22 | 158 | 540 | 997 | 208 | 1240 | 290 | 286 | 205 | 151 | 64 | 185 | 63 |
| 23 | 443 | 399 | 1130 | 267 | 1610 | 426 | 278 | 293 | 136 | 66 | 148 | 60 |
| 24 | 1020 | 325 | 843 | 243 | 1930 | 510 | 271 | 600 | 137 | 70 | 138 | 59 |
| 25 | 419 | 274 | 1150 | 225 | 1730 | 602 | 266 | 576 | 146 | 80 | 268 | 77 |
| 26 | 239 | 237 | 1170 | 208 | 1370 | 556 | 246 | 476 | 136 | 250 | 248 | 96 |
| 27 | 170 | 210 | 922 | 208 | 1100 | 496 | 237 | 362 | 116 | 700 | 181 | 61 |
| 28 | 137 | 1100 | 715 | 196 | 888 | 460 | 440 | 291 | 105 | 350 | 145 | 65 |
| 29 | 126 | 1450 | 577 | 193 | --- | 430 | 1030 | 249 | 98 | 250 | 121 | 61 |
| 30 | 153 | 852 | 488 | 182 | --- | 389 | 724 | 220 | 93 | 150 | 112 | 52 |
| 31 | 132 | --- | 831 | 304 | --- | 372 | --- | 196 | --- | 120 | 155 | --- |
| TOTAL | 5002 | 13986 | 16280 | 18321 | 36327 | 13090 | 15097 | 10057 | 7523 | 4418 | 7281 | 2390 |
| MEAN | 161 | 466 | 525 | 591 | 1297 | 422 | 503 | 324 | 251 | 143 | 235 | 79.7 |
| MAX | 1020 | 3190 | 1170 | 1720 | 3920 | 754 | 1030 | 600 | 803 | 700 | 900 | 156 |
| MIN | 42 | 100 | 205 | 181 | 564 | 268 | 237 | 196 | 93 | 64 | 66 | 52 |
| CFSM | .50 | 1.46 | 1.65 | 1.85 | 4.07 | 1.32 | 1.58 | 1.02 | .79 | .45 | .74 | .25 |
| IN. | .58 | 1.63 | 1.90 | 2.14 | 4.24 | 1.53 | 1.76 | 1.17 | .88 | .52 | .85 | .28 |

CAL YR 1984 TOTAL 199739 MEAN 546 MAX 10700 MIN 36 CFSM 1.71 IN. 23.29
WTR YR 1985 TOTAL 149772 MEAN 410 MAX 3920 MIN 42 CFSM 1.29 IN. 17.47

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to these events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

## Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1985

| Station No. | Station Name | Location | Drainage area (mi$^2$) | Period of record | Annual Maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge (ft$^3$/s) |
| | | POTOMAC RIVER BASIN | | | | | |
| 01622400 | Buffalo Branch tributary near Christian, Va. | Lat 38°11'55", long 79°13'10", Augusta County, at culvert on State Highway 42, 1.3 mi north of Christian. Datum of gage is 1,622.53 ft above National Geodetic Vertical Datum of 1929. | 0.49 | 1967-85 | – | <2.77 | (*) |
| 01629945 | Chub Run near Stanley, Va. | Lat 38°34'31", long 78°27'32", Page County, at culvert on State Highway 689, 2.2 mi east of Stanley. Datum of gage is 1,023.05 ft above National Geodetic Vertical Datum of 1929. | 3.16 | 1959-69a,<br>1970-85 | 2- 4-85 | 4.19 | 428 |
| 01632970 | Crooked Run near Mt. Jackson, Va. | Lat 38°45'44", long 78°41'06", Shenandoah County, at culvert on State Highway 263, 2.3 mi west of Mt. Jackson. Datum of gage is 962.84 ft above National Geodetic Vertical Datum of 1929. | 6.49 | 1972-85 | 2-12-85 | 5.80 | 1,070 |
| 01633650 | Pughs Run near Woodstock, Va. | Lat 38°55'48", long 78°32'43", Shenandoah County, at culvert on State Highway 623, 4.0 mi northeast of Woodstock. Datum of gage is 1,027.27 ft above National Geodetic Vertical Datum of 1929. | 3.66 | 1972-85 | 2-12-85 | 5.37 | 155 |
| 01652500 | Fourmile Run at Alexandria, Va. | Lat 38°50'35", long 77°05'09", Arlington County, at upstream side of bridge on Shirlington Road, at Arlington County-Alexandria City line, 0.1 mi upstream from Interstate Highway 95, and 2.5 mi upstream from mouth. Datum of gage is 28.57 ft above National Geodetic Vertical Datum of 1929. | 13.8 | 1951-69†,<br>1970-73,<br>1974-75†,<br>1976-77b,<br>1979-82†,<br>1983-85 | 9-10-85 | 10.36 | 4,480 |

* Discharge not determined.
† Operated as a continuous-record gaging station.
< Less than.
a Records provided by U.S. Department of Agriculture, Soil Conservation Service.
b Prior to Sept. 28, 1973, at site 0.4 mi downstream at datum 6.02 ft lower.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi$^2$) | Period of record | Annual Maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge (ft$^3$/s) |
| | | POTOMAC RIVER BASIN--Continued | | | | | |
| 01653000 | Cameron Run at Alexandria, Va. | Lat 38°48'23", long 77°06'36", Fairfax County, at left downstream side of Southern Railway bridge, at Alexandria, and 800 ft downstream from confluence of Holmes Run and Backlick Run. Datum of gage is 31.07 ft above National Geodetic Vertical Datum of 1929. | 33.7 | 1955-80†,<br>1981-85 | 11- 5-84 | 6.40 | 3,950 |
| 01656200 | Broad Run near Warrenton, Va. | Lat 38°48'25", long 77°48'47", Fauquier County, at culvert on State Highway 17, 7 mi north of Warrenton. | 2.94 | 1950-78,<br>1983-85 | 2-12-85 | (c) | (*) |
| | | GREAT WICOMICO RIVER BASIN | | | | | |
| 01661600 | Great Wicomico River near Horse Head, Va. | Lat 37°53'15", long 76°27'00", Northumberland County, at culvert on State Highway 604, 1.7 mi west of Horse Head. | 6.98 | 1969-85 | 9-26-85 | 5.04 | 710 |
| | | RAPPAHANNOCK RIVER BASIN | | | | | |
| 01661900 | Carter Run near Marshall, Va. | Lat 38°47'57", long 77°52'09", Fauquier County, on left bank 50 ft upstream from farm road, 1.2 mi downstream from Horner Run, 4.7 mi south of Marshall, 6.7 mi southwest of The Plains, and 9 mi upstream from mouth. Datum of gage is 388.39 ft above National Geodetic Vertical Datum of 1929. | 19.5 | 1976-82†,<br>1983-85 | 2-12-85 | 6.21 | 970 |
| 01665050 | Pony Mountain Branch near Culpeper, Va. | Lat 38°27'04", long 77°57'24", Culpeper County, at culvert on State Highway 3, 2.7 mi southeast of Culpeper. | .30 | 1958-69a,<br>1970-85 | 6-20-85 | 2.28 | 92 |
| 01668300 | Farmers Hall Creek near Champlain, Va. | Lat 38°00'05", long 76°58'40", Essex County, at culvert on U.S. Highway 17, 1.2 mi southeast of Champlain. Datum of gage is 42.10 ft above National Geodetic Vertical Datum of 1929. | 2.18 | 1966-85 | 8-18-85 | 6.71 | 150 |
| | | PIANKATANK RIVER BASIN | | | | | |
| 01669800 | My Ladys Swamp near Saluda, Va. | Lat 37°34'34", long 76°31'30", Middlesex County, at culvert on State Highway 629, 4.4 mi southeast of Saluda. Datum of gage is 4.16 ft above National Geodetic Vertical Datum of 1929. | 4.81 | 1969-85 | 1- 2-85 | 8.38 | 592 |
| | | YORK RIVER BASIN | | | | | |
| 01671615 | Foster Creek near Ferncliff, Va. | Lat 37°57'35", long 78°11'20", Louisa County, at culvert on U.S. Highway 250, 4.6 mi northwest of Ferncliff. Datum of gage is 424.22 ft above National Geodetic Vertical Datum of 1929. | .61 | 1960-68a,<br>1969-85 | 8-18-85 | 9.04 | (*) |

* Discharge not determined.
† Operated as a continuous-record gaging station.
a Records provided by U.S. Department of Agriculture, Soil Conservation Service.
c Gage height unknown.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area ($mi^2$) | Period of record | Annual Maximum Date | Annual Maximum Gage height (ft) | Annual Maximum Discharge ($ft^3/s$) |
|---|---|---|---|---|---|---|---|
| | | YORK RIVER BASIN--Continued | | | | | |
| 01671650 | Waldrop Creek near Louisa, Va. | Lat 38°00'08", long 78°04'22", Louisa County, at culvert on State Highway 632, 4.2 mi southwest of Louisa. Datum of gage is 361.41 ft above National Geodetic Vertical Datum of 1929. | 2.85 | 1969-85 | 8-18-85 | 9.01 | 581 |
| 01671750 | Harris Creek near Trevilians, Va. | Lat 38°01'02", long 78°03'06", Louisa County, at culvert on State Highway 632, 2.7 mi southeast of Trevilians. | 3.31 | 1969-85 | 8-18-85 | 7.07 | 714 |
| 01674200 | Reedy Creek near Dawn, Va. | Lat 37°52'55", long 77°21'35", Caroline County, at bridge on U.S. Highway 301, 3.3 mi north of Dawn. | 16.8 | 1950-69,<br>1972-85 | 8-18-85 | 3.66 | 105 |
| 01674700 | Aylett Creek at Aylett, Va. | Lat 37°47'05", long 77°06'23", King William County, at culvert on U.S. Highway 360 at Aylett. Datum of gage is 26.72 ft above National Geodetic Vertical Datum of 1929. | 6.17 | 1969-85 | 8-18-85 | 3.14 | (*) |
| | | JAMES RIVER BASIN | | | | | |
| 02012950 | Sweet Springs Creek tributary at Sweet Chalybeate, Va. | Lat 37°39'25", long 80°14'10", Alleghany County, at culvert on State Highway 311, 0.9 mi north of Sweet Chalybeate. Datum of gage is 1,926.94 ft above National Geodetic Vertical Datum of 1929. | .66 | 1966-75,<br>1978-85 | 2- 2-85 | 4.33 | 43 |
| 02015600 | Cowpasture River near Head Waters, Va. | Lat 38°19'30", long 79°26'14", Augusta County, at bridge on U.S. Highway 250, 1.2 mi west of Head Waters. Datum of gage is 1,985.65 ft above National Geodetic Vertical Datum of 1929. | 11.3 | 1949-85 | 5- 3-85 | 3.74 | 228 |
| 02017300 | Craig Creek at New Castle, Va. | Lat 37°30'06", long 80°06'18", Craig County, at bridge on State Highway 616, at New Castle. Datum of gage is 1,245.69 ft above National Geodetic Vertical Datum of 1929. | 112 | 1967-85 | 8-18-85 | 11.93 | 5,500 |
| 02017700 | Craig Creek tributary near New Castle, Va. | Lat 37°33'21", long 79°59'52", Craig County, at culvert on State Highway 606, 7.1 mi northeast of New Castle. | 2.05 | 1968-85 | 2- 2-85 | 3.46 | 53 |
| 02018800 | North Fork near Fincastle, Va. | Lat 37°32'07", long 79°56'03", Botetourt County, at culvert on State Highway 606, 3.9 mi northwest of Fincastle. Datum of gage is 1,248.65 ft above National Geodetic Vertical Datum of 1929. | 4.17 | 1968-85 | 2- 2-85 | 3.89 | 126 |
| 02020100 | Renick Run near Buchanan, Va. | Lat 37°35'27", long 79°38'04", Botetourt County, at culvert on Frontage Road of Interstate Highway 81, 4.8 mi northeast of Buchanan. Datum of gage is 1,261.85 ft above National Geodetic Vertical Datum of 1929. | 2.06 | 1967-85 | 8-18-85 | 3.13 | 113 |

* Discharge not determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi$^2$) | Period of record | Annual Maximum Date | Annual Maximum Gage height (ft) | Annual Maximum Discharge (ft$^3$/s) |
|---|---|---|---|---|---|---|---|
| | | JAMES RIVER BASIN--Continued | | | | | |
| 02021700 | Cedar Grove Branch near Rockbridge Baths, Va. | Lat 37°53'00", long 79°23'10", Rockbridge County, at culvert on State Highway 39, 1.8 mi southeast of Rockbridge Baths. Datum of gage is 1,041.22 ft above National Geodetic Vertical Datum of 1929. | 12.3 | 1967-85 | 6-10-85 | 5.57 | 217 |
| 02023300 | South River near Steeles Tavern, Va. | Lat 37°55'50", long 79°09'55", Augusta County, at bridge on State Highway 608, 3 mi east of Steeles Tavern. | 15.7 | 1951-85 | 11-28-84 | 3.73 | 715 |
| 02027700 | Buffalo River tributary near Amherst, Va. | Lat 37°33'45", long 78°57'35", Amherst County, at culvert on U.S. Highway 60, 5.2 mi southeast of Amherst. Datum of gage is 583.66 ft above National Geodetic Vertical Datum of 1929. | .46 | 1966-85 | 8-18-85 | (c) | (*) |
| 02030800 | Stockton Creek near Afton, Va. | Lat 38°01'48", long 78°48'30", Albemarle County, at culvert on State Highway 6, 1.7 mi east of Afton. Datum of gage is 835.27 ft above National Geodetic Vertical Datum of 1929. | 2.80 | 1967-85 | 8-19-85 | 4.50 | 68 |
| 02032200 | Doyles River near White Hall, Va. | Lat 38°12'10", long 78°40'17", Albemarle County, at bridge on State Highway 810, 5.9 mi north of White Hall. Datum of gage is 928.08 ft above National Geodetic Vertical Datum of 1929. | 6.70 | 1967-85 | - | <10.10 | (*) |
| 02032300 | Muddy Run near Stanardsville, Va. | Lat 38°14'05", long 78°37'02", Albemarle County, at bridge on State Highway 810, 11 mi southwest of Stanardsville. Datum of gage is 756.79 ft above National Geodetic Vertical Datum of 1929. | 3.36 | 1967-85 | 2-12-85 | 6.39 | (*) |
| 02032540 | Haneytown Creek near Stanardsville, Va. | Lat 38°16'48", long 78°30'50", Greene County, at bridge on State Highway 810, 4.5 mi west of Stanardsville. Datum of gage is 616.34 ft above National Geodetic Vertical Datum of 1929. | 4.45 | 1967-85 | - | <12.33 | (*) |
| 02032550 | Lynch River at Nortonsville, Va. | Lat 38°14'16", long 78°32'32", Albemarle County, at bridge on State Highway 810, 7 mi southwest of Stanardsville. Datum of gage is 591.70 ft above National Geodetic Vertical Datum of 1929. | 13.6 | 1967-85 | - | <12.01 | (*) |
| 02032700 | Schenks Branch at Charlottesville, Va. | Lat 38°02'32", long 78°28'30", Charlottesville City, at bridge just upstream from U.S. Highway 250 bypass. Datum of gage is 371.63 ft above National Geodetic Vertical Datum of 1929. | 1.34 | 1950-77,<br>1979-85 | 5-23-85 | 4.96 | 284 |
| 02033300 | Moores Creek near Charlottesville, Va. | Lat 38°00'25", long 78°34'25", Albemarle County, at culvert on access road, 150 ft north of U.S. Highway 29, and 4 mi southwest of Charlottesville. | 3.52 | 1967-77,<br>1979-85 | - | <13.81 | (*) |

* Discharge not determined.
< Less than.
c Gage height unknown.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi$^2$) | Period of record | Annual Maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge (ft$^3$/s) |
| | | JAMES RIVER BASIN--Continued | | | | | |
| 02037800 | Falling Creek near Midlothian, Va. | Lat 37°27'15", long 77°35'20", Chesterfield County, at bridge on State Highway 653, 4 mi southeast of Midlothian. Datum of gage is 170.06 ft above National Geodetic Vertical Datum of 1929. | 18.1 | 1951-85 | 8-18-85 | 7.23 | 919 |
| 02040500 | Flat Creek near Amelia, Va. | Lat 37°23'27", long 78°03'45", Amelia County, at bridge on State Highway 681, 6.0 mi northwest of Amelia. | 73.0 | 1946-70,<br>1972-85 | 2- 1-85 | 6.80 | 788 |
| 02042250 | Bailey Branch tributary at Spring Grove, Va. | Lat 37°10'29", long 76°59'13", Surry County, at culvert on State Highway 10, 1.0 mi northwest of Spring Grove. Datum of gage is 61.39 ft above National Geodetic Vertical Datum of 1929. | .71 | 1967-85 | 9-27-85 | 5.73 | 203 |
| 02042300 | Horsepen Branch at Richmond, Va. | Lat 37°35'45", long 77°30'40", Henrico County, at culvert on U.S. Highway 250 (Broad Street), at Richmond. | 1.35 | 1965-85 | 8-18-85 | 7.50 | 2,700 |
| 02042400 | Jordans Branch at Richmond, Va. | Lat 37°35'10", long 77°29'55", Henrico County, at bridge on U.S. Highway 250 (Broad Street), at Richmond. | 2.41 | 1965-85 | 8-18-85 | 12.44 | (*) |
| 02042780 | West Branch Long Hill Swamp near Lightfoot, Va. | Lat 37°18'50", long 77°46'01", James City County, at culvert on State Highway 612, 2.0 mi south of Lightfoot. | 2.47 | 1970-76,<br>1978-85 | 9-26-85 | 4.54 | 163 |
| | | CHOWAN RIVER BASIN | | | | | |
| 02044200 | Falls Creek tributary near Victoria, Va. | Lat 37°02'04", long 78°10'26", Lunenburg County, at culvert on State Highway 49, 3.6 mi northeast of Victoria. | .34 | 1962-85 | 2- 1-85 | 3.20 | 27 |
| 02050050 | Blackwater River tributary near Holland, Va. | Lat 36°38'44", long 76°51'29", Nansemond County, at culvert on State Highway 189, 4.9 mi southwest of Holland. Datum of gage is 29.25 ft above National Geodetic Vertical Datum of 1929. | 2.76 | 1967-85 | 9-26-85 | 6.78 | 289 |
| | | ROANOKE RIVER BASIN | | | | | |
| 02057700 | Powder Mill Creek at Rocky Mount, Va. | Lat 37°00'26", long 79°52'25", Franklin County, at culvert on U.S. Highway 220 bypass at Rocky Mount. | .64 | 1967-85 | 8-18-85 | 14.38 | 107 |
| 02065100 | Snake Creek near Brookneal, Va. | Lat 37°00'42", long 78°57'52", Halifax County, at culvert on U.S. Highway 501, 2.1 mi south of Brookneal. | 1.68 | 1967-85 | 8-18-85 | (d) | (*) |
| 02065300 | Right Hand Fork near Appomattox, Va. | Lat 37°16'12", long 78°49'14", Appomattox County, at culvert on State Highway 727, 5.2 mi south of Appomattox. | 2.08 | 1967-85 | 8-18-85 | 4.31 | 84 |

* Discharge not determined.
d Gage height unknown. High-water mark destroyed by flood of Nov. 4, 1985.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi²) | Period of record | Annual Maximum Date | Annual Maximum Gage height (ft) | Annual Maximum Discharge (ft³/s) |
|---|---|---|---|---|---|---|---|
| | | ROANOKE RIVER BASIN--Continued | | | | | |
| 02075350 | Powells Creek near Turbeville, Va. | Lat 36°34'50", long 79°11'20", Halifax County, at culvert on U.S. Highway 58, 8.8 mi southwest of Turbeville. Datum of gage is 383.95 ft above National Geodetic Vertical Datum of 1929. | 0.28 | 1958-69a,<br>1970-85 | 8-18-85 | 5.51 | 261 |
| 02076000 | Dan River at South Boston, Va. | Lat 36°41'37", long 78°54'09", South Boston City, on left bank 100 ft upstream from Norfolk and Western Railroad bridge at South Boston. | 2,730 | 1900-07†,<br>1923-52†,<br>1953-62f,<br>1980-85f | 8-21-85 | 26.36 | (*) |
| 02076200 | Bearskin Creek near Chatham, Va. | Lat 36°50'30", long 79°29'05", Pittsylvania County, at culvert on State Highway 57, 4.5 mi west of Chatham. | 4.06 | 1967-85 | 8-18-85 | (d) | (*) |
| 02076700 | Blacks Creek near Mt. Airy, Va. | Lat 36°56'40", long 79°09'56", Pittsylvania County, at culvert on State Highway 40, 1.5 mi east of Mt. Airy. | 3.44 | 1966-85 | 8-18-85 | (d) | (*) |
| | | KANAWHA RIVER BASIN | | | | | |
| 03165700 | Cripple Creek at Cedar Springs, Va. | Lat 36°49'31", long 81°16'45", Wythe County, at bridge on State Highway 749, 0.6 mi southeast of Cedar Springs. | 11.3 | 1967-85 | - | <13.88 | <344 |
| 03167300 | Mira Fork tributary near Dugspur, Va. | Lat 36°50'16", long 80°35'47", Carroll County, at culvert on U.S. Highway 221, 2.2 mi northeast of Dugspur. Datum of gage is 2,602.96 ft above National Geodetic Vertical Datum of 1929. | .62 | 1967-85 | - | <2.79 | <44 |
| 03167700 | Beaverdam Creek at Hillsville, Va. | Lat 36°46'05", long 80°43'33", Carroll County, at culvert on State Highway 1009, 0.2 mi east of Hillsville corporate limits. Datum of gage is 2,373.04 ft above National Geodetic Vertical Datum of 1929. | 4.75 | 1968-85 | 2- 2-85 | 3.20 | 160 |
| 03168750 | Thorne Springs Branch near Dublin, Va. | Lat 37°05'30", long 80°44'34", Pulaski County, at pond dam just upstream from U.S. Highway 11, 3.3 mi southwest of Dublin. | 4.77 | 1957-69a,<br>1970-85 | 2- 2-85 | .57 | 4.7 |
| | | BIG SANDY RIVER BASIN | | | | | |
| 03208040 | Russell Fork at Council, Va. | Lat 37°04'41", long 82°03'56", Buchanan County, on left bank 50 ft upstream from bridge on State Highway 80, 750 ft downstream from Ball Creek, 0.6 mi southeast of Council, and 4.7 mi upstream from Hurricane Creek. | 10.2 | 1981-83†,<br>1984-85 | 2- 1-85 | (c) | (*) |

* Discharge not determined.
† Operated as a continuous-record gaging station.
< Less than.
a Records provided by U.S. Department of Agriculture, Soil Conservation Service.
c Gage height unknown.
d Gage height unknown. High-water mark destroyed by flood of Nov. 4, 1985.
f Operated as a stage-only station.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi²) | Period of record | Annual Maximum Date | Annual Maximum Gage height (ft) | Annual Maximum Discharge (ft³/s) |
|---|---|---|---|---|---|---|---|
| | | BIG SANDY RIVER BASIN--Continued | | | | | |
| 03208100 | Russell Fork at Birchleaf, Va. | Lat 37°09'50", long 82°15'20", Dickenson County, on right bank 125 ft upstream from bridge on State Highway 80, 150 ft upstream from Fryingpan Creek, and 1.3 mi southeast of Birchleaf. | 87.4 | 1981-83†,<br>1984-85 | 2- 1-85 | 9.15 | 3,730 |
| 03208800 | Pound River above Indian Creek at Pound, Va. | Lat 37°07'26", long 82°36'29", Wise County, on left bank at Pound, 1,600 ft downstream from confluence of North and South Forks, 0.5 mi upstream from U.S. Highway 23, and 0.7 mi upstream from Indian Creek. Datum of gage is 1,535.64 ft above National Geodetic Vertical Datum of 1929. | 36.7 | 1966-78†,<br>1979-85 | 2- 1-85 | 6.46 | 466 |
| 03208850 | Pound River below Bold Camp Creek, at Pound, Va. | Lat 37°07'19", long 82°35'55", Wise County, on left bank at Pound, 1,000 ft upstream from State Highway 83, 0.3 mi downstream from Bold Camp Creek, and 0.5 mi downstream from Indian Creek. Datum of gage is 1,527.36 ft above National Geodetic Vertical Datum of 1929. | 61.2 | 1966-78†,<br>1979-85 | 2- 1-85 | 11.18 | 1,150 |
| 03208900 | Pound River near Georges Fork, Va. | Lat 37°09'51", long 82°31'30", Dickenson County, on right bank 50 ft upstream from bridge on State Highway 624, 150 ft upstream from Camp Creek, and 2.6 mi northwest of Georges Fork. Datum of gage is 1,470.39 ft above National Geodetic Vertical Datum of 1929. | 82.5 | 1964-82†,<br>1983-85 | 2- 1-85 | 6.42 | 1,270 |
| 03209200 | Russell Fork at Bartlick, Va. | Lat 37°14'45", long 82°19'25", Dickenson County, on left bank at Bartlick, just upstream from bridge on State Highway 611, and 0.2 mi downstream from Pound River. Datum of gage is 1,165.00 ft above National Geodetic Vertical Datum of 1929. | 526 | 1963-82†,<br>1983-85 | 2- 1-85 | 13.65 | 6,530 |
| 03213590 | Knox Creek at Kelsa, Va. | Lat 37°27'02", long 82°03'34", Buchanan County, on left bank at bridge on State Highway 697, 0.3 mi downstream from Pawpaw Creek, and 0.8 mi northeast of Kelsa. | 84.3 | 1980-81†,<br>1982-85 | 2- 1-85 | 7.86 | 2,040 |
| | | TENNESSEE RIVER BASIN | | | | | |
| 03471200 | South Fork Holston River at Teas, Va. | Lat 36°46'22", long 81°27'05", Smyth County, at bridge on State Highway 601, at Teas. Datum of gage is 2,496.98 ft above National Geodetic Vertical Datum of 1929. | 31.1 | 1967-85 | - | <10.88 | <20 |

† Operated as a continuous-record gaging station.
< Less than.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi²) | Period of record | Annual Maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Dis-charge (ft³/s) |
| | | **TENNESSEE RIVER BASIN--Continued** | | | | | |
| 03472500 | Beaverdam Creek at Damascus, Va. | Lat 36°37'40", long 81°47'28", Washington County, at Damascus, 0.6 mi upstream from mouth. Datum of gage is 1,946.66 ft above National Geodetic Vertical Datum of 1929. | 56.0 | 1948-59†,<br>1960-85 | 2- 1-85 | 3.60 | 1,300 |
| 03473500 | Middle Fork Holston River at Groseclose, Va. | Lat 36°53'19", long 81°20'51", Smyth County, 10 ft downstream from bridge on State Highway 679, at Groseclose. Datum of gage is 2,442.86 ft above National Geodetic Vertical Datum of 1929. | 7.39 | 1948-57†,<br>1958-85 | 2- 1-85 | 2.51 | 34 |
| 03474000 | Middle Fork Holston River at Seven Mile Ford, Va. | Lat 36°48'26", long 81°37'20", Smyth County, on right bank at downstream side of bridge on U.S. Highway 11, at Seven Mile Ford, and 0.3 mi upstream from Meade Creek. Datum of gage is 1,960.00 ft above National Geodetic Vertical Datum of 1929. | 132 | 1942-81†,<br>1982-85e | 2- 1-85 | 3.61 | 2,100 |
| 03474700 | Hutton Creek near Chilhowie, Va. | Lat 36°47'00", long 81°44'05", Washington County, at bridge on U.S. Highway 11, 3.3 mi southwest of Chilhowie. | 8.32 | 1967-85 | 2- 1-85 | 10.86 | 262 |
| 03474800 | Hall Creek near Glade Spring, Va. | Lat 36°45'47", long 81°48'15", Washington County, at bridge on U.S. Highway 11, 2.5 mi south of Glade Spring. | 7.90 | 1967-85 | - | <9.60 | <200 |
| 03475600 | Cedar Creek near Meadowview, Va. | Lat 36°44'50", long 81°51'20", Washington County, at culvert on U.S. Highway 11, 1.2 mi south of Meadowview. Datum of gage is 2,034.66 ft above National Geodetic Vertical Datum of 1929. | 3.38 | 1967-85 | 2- 1-85 | 5.56 | 22 |
| 03465700 | Spring Creek near Abingdon, Va. | Lat 36°40'43", long 82°02'29", Washington County, at culvert on U.S. Highway 11, 3.8 mi southwest of Abingdon. Datum of gage is 1,977.54 ft above National Geodetic Vertical Datum of 1929. | 2.99 | 1967-85 | 7-28-85 | 3.07 | 46 |
| 03487800 | Lick Creek near Chatham Hill, Va. | Lat 36°57'44", long 81°28'21", Smyth County, 270 ft upstream from bridge on State Highway 42, 2.9 mi east of Chatham Hill. Datum of gage is 2,076.97 ft above National Geodetic Vertical Datum of 1929. | 25.5 | 1966-68†,<br>1969-85 | 2- 1-85 | 5.64 | 1,230 |
| 03488450 | Brumley Creek at Brumley Gap, Va. | Lat 36°47'30", long 82°01'10", Washington County, on left bank 20 ft downstream from bridge on State Highway 611, 0.2 mi upstream from mouth, and 0.8 mi southeast of Brumley Gap. Datum of gage is 1,489.16 ft above National Geodetic Vertical Datum of 1929. | 21.1 | 1979-81†,<br>1982-85 | 2- 2-85 | 5.12 | 768 |

† Operated as a continuous-record gaging station.
< Less than.
e Records provided by Tennessee Valley Authority since Jan. 1, 1982.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi²) | Period of record | Annual Maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (ft) | Discharge (ft³/s) |
| | | **TENNESSEE RIVER BASIN--Continued** | | | | | |
| 03489800 | Cove Creek near Shelleys, Va. | Lat 36°39'13", long 82°21'16", Scott County, at bridge on U.S. Highway 58, 2 mi north of Shelleys. Datum of gage is 1,381.53 ft above National Geodetic Vertical Datum of 1929. | 17.3 | 1951-85 | 2- 1-85 | 6.04 | 940 |
| 03489870 | Big Moccasin Creek at Collinwood, Va. | Lat 36°44'16", long 82°19'25", Russell County, at bridge on State Highway 612, at Collinwood. Datum of gage is 1,796.34 ft above National Geodetic Vertical Datum of 1929. | 41.9 | 1967-68†,<br>1969-85 | 2- 1-85 | 5.04 | 2,130 |
| 03490000 | North Fork Holston River near Gate City, Va. | Lat 36°36'31", long 82°34'05", Scott County, on left bank 75 ft upstream from bridge on U.S. Highway 23, 1.6 mi downstream from Big Moccasin Creek, and 2.1 mi southeast of Gate City. Datum of gage is 1,197.56 ft above National Geodetic Vertical Datum of 1929. | 672 | 1931-81†,<br>1982-85e | 2- 2-85 | 11.45 | 15,400 |
| 03524500 | Guest River at Coeburn, Va. | Lat 36°55'45', long 82°27'23", Wise County, on right bank 30 ft downstream from bridge on State Highway 72, 1.0 mi southeast of Coeburn, and 6.3 mi upstream from mouth. Datum of gage is 1,925.80 ft above National Geodetic Vertical Datum of 1929. | 87.3 | 1949-59†,<br>1960-78,<br>1979-81†,<br>1982-85 | 2- 1-85 | 6.65 | 1,590 |
| 03524900 | Stony Creek at Ka, Va. | Lat 36°48'57", long 82°37'02", Scott County, on left bank along State Highway 619, at Ka, and 4.2 mi upstream from mouth. | 30.9 | 1980-81†,<br>1982-85 | - | <5.03 | <1,450 |
| 03526000 | Copper Creek near Gate City, Va. | Lat 36°40'26", long 82°33'57", Scott County, on right bank at upstream side of highway bridge, 2.6 mi northeast of Gate City. Datum of gage is 1,301.95 ft above National Geodetic Vertical Datum of 1929. | 106 | 1948-72†,<br>1973-85 | 2- 2-85 | 9.65 | 2,910 |
| 03527000 | Clinch River at Speers Ferry, Va. | Lat 36°38'55", long 82°45'02", Scott County, on right bank 200 ft downstream from bridge on U.S. Highway 58, 0.5 mi downstream from Copper Creek, and 0.8 mi northwest of Speers Ferry. Datum of gage is 1,196.52 ft above National Geodetic Vertical Datum of 1929. | 1,126 | 1920-76†,<br>1977-78,<br>1979-81†,<br>1982-85 | 2- 2-85 | 18.11 | 18,700 |

† Operated as a continuous-record gaging station.
< Less than.
e Records provided by Tennessee Valley Authority since Jan. 1, 1982.

Annual maximum discharge at crest-stage partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi²) | Period of record | Annual Maximum |  |  |
|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Date | Gage height (ft) | Discharge (ft³/s) |
|  |  | TENNESSEE RIVER BASIN--Continued |  |  |  |  |  |
| 03529500 | Powell River at Big Stone Gap, Va. | Lat 36°52'08", long 82°46'32", Wise County, on right bank 10 ft upstream from bridge on U.S. Highway 23, at Big Stone Gap, and 1.0 mi upstream from South Fork Powell River. Datum of gage is 1,459.07 ft above National Geodetic Vertical Datum of 1929. | 112 | 1945-59†,<br>1960-77,<br>1979-81†,<br>1982-85 | 2- 1-85 | 4.71 | 2,240 |
| 03530500 | North Fork Powell River at Pennington Gap, Va. | Lat 36°46'26", long 83°01'59", Lee County, near right bank on downstream side of bridge on State Highway 621, 0.8 mi north of Pennington Gap, and 4.7 mi upstream from mouth. Datum of gage is 1,363.02 ft above National Geodetic Vertical Datum of 1929. | 71.4 | 1945-51†,<br>1952-77,<br>1979-81†,<br>1982-85 | 2- 1-85 | 5.35 | 1,700 |

† Operated as a continuous-record gaging station.

## Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream when continuous records are available, will give a picture of the low-flow potentiality of a stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1985

| Station No. | Station Name | Location | Drainage area (mi$^2$) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft$^3$/s) |
| | | POTOMAC RIVER BASIN | | | | |
| 01613570 | Back Creek at Gainesboro, Va. | Lat 39°17'09", long 78°15'51", Frederick County, at bridge on State Highway 684, 0.25 mi upstream from Winchester and Western Railroad, and 0.7 mi northwest of Gainesboro. | 34.4 | 1951-54,<br>1982-84 | 9- 9-85 | 3.24 |
| 01621000 | Dry River at Rawley Springs, Va. | Lat 38°30'10", long 79°03'14", Rockingham County, at bridge on State Highway 847, at Rawley Springs, and 1.2 mi downstream from Harrisonburg Reservoir. | 72.6 | 1946-48†,<br>1952-55,<br>1963,<br>1982-84 | 9-10-85 | 6.52 |
| 01622230 | Middle River at Trimbles Mill, near Swoope, Va. | Lat 38°08'10", long 79°13'06", Augusta County, at bridge on State Highway 707, at Trimbles Mill, and 1.7 mi southwest of Swoope. | 20.6 | 1982-84 | 9-11-85 | 4.60 |
| 01631500 | North Fork Shenandoah River at Fulks Run, Va. | Lat 38°40'18", long 78°55'47", Rockingham County, at bridge on State Highway 917, 0.75 mi upstream from Little Dry River, and 0.8 mi northwest of old site of Fulks Run. | 106 | 1952-54,<br>1982-84 | 9-10-85 | 1.46 |
| 01632840 | Smith Creek near Lacey Spring, Va. | Lat 38°32'18", long 78°45'03", Rockingham County, at low-water culvert on State Highway 717, 0.4 mi upstream from Dry Fork, and 0.9 mi east of Lacey Spring. | 21.3 | 1982-84 | 9-10-85 | 2.88 |
| 01635250 | Passage Creek near Detrick, Va. | Lat 38°47'49", long 78°27'42", Shenandoah County, at bridge on State Highway 776, 0.4 mi upstream from Buck Run, and 4.0 mi southwest of Detrick. | 31.7 | 1963,<br>1982-84 | 9-10-85 | 2.40 |
| 01636270 | Bordon Marsh Run near Boyce, Va. | Lat 39°00'09", long 78°05'51", Warren County, at culvert on State Highway 624, 1.1 mi upstream from mouth, and 6.6 mi southwest of Boyce. | 8.71 | 1982-84 | 9- 9-85 | 2.25 |
| | | JAMES RIVER BASIN | | | | |
| 02002000 | Jackson River at Vanderpool, Va. | Lat 38°22'05", long 79°37'35", Highland County, at bridge on U.S. Highway 220, at Vanderpool, and 0.35 mi upstream from North (East) Fork Jackson River. | 13.0 | 1982-84 | 9-11-85 | 1.76 |
| 02015800 | Thompson Creek near Bath Alum, Va. | Lat 38°02'38", long 79°41'05", Bath County, at bridge on State Highway 39, 1.3 mi upstream from mouth, and 1.3 mi east of Bath Alum. | 15.7 | 1963,<br>1982-84 | 9-11-85 | 2.64 |
| 02015930 | Pads Creek near Longdale Furnace, Va. | Lat 37°51'54", long 79°43'56", Alleghany County, 200 ft downstream from footbridge, 0.2 mi upstream from mouth, and 4.7 mi northwest of Longdale Furnace. | 26.3 | 1982-84 | 9-11-85 | .372 |

† Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi²) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft³/s) |
| | | **JAMES RIVER BASIN--Continued** | | | | |
| 02016600 | Craig Creek near McDonalds Mill, Va. | Lat 37°21'16", long 80°17'23", Craig County, at private road off State Highway 621, 0.1 mi upstream from Muddy Branch, and 3.9 mi north of McDonalds Mill. | 23.0 | 1982-84 | 9-10-85 | 1.75 |
| 02019100 | Spreading Springs Branch at Springwood, Va. | Lat 37°32'57", long 79°44'42", Botetourt County, at bridge on State Highway 632, at Springwood, and 0.1 mi upstream from mouth. | 6.76 | 1982-84 | 9-12-85 | 2.49 |
| 02020170 | East Fork Elk Creek at Belfast Trail near Natural Bridge, Va. | Lat 37°34'17", long 79°29'31", Rockbridge County, at footbridge along State Highway 781, 2.0 mi upstream from mouth, and 6.0 mi southeast of Natural Bridge. | 4.15 | 1983-84 | 9-12-85 | 1.73 |
| 02020200 | Calfpasture River at West Augusta, Va. | Lat 38°16'24", long 79°18'02", Augusta County, at bridge on U.S. Highway 250, 0.15 mi upstream from Barn Lick Branch, and 0.4 mi northeast of West Augusta. | 12.8 | 1942,<br>1953-54,<br>1956,<br>1963,<br>1982-84 | 9-10-85 | .451 |
| 02023300 | South River near Steeles Tavern, Va. | Lat 37°55'50", long 79°09'55", Augusta County, at bridge on State Highway 608, 0.1 mi downstream from confluence of St. Marys River and Spy Run, and 2.1 mi east of Steeles Tavern. | 15.7 | 1941,<br>1952-53,<br>1963,<br>1982-84 | 9-10-85 | 2.68 |
| 02024240 | South Buffalo Creek near Lexington, Va. | Lat 37°44'14", long 79°34'18", Rockbridge County, at bridge on State Highway 611, 0.2 mi upstream from junction with North Buffalo Creek, and 8.5 mi southwest of Lexington. | 21.1 | 1982-84 | 9-11-85 | 6.99 |
| 02025650 | Harris Creek near Monroe, Va. | Lat 37°29'35", long 79°09'10", Amherst County, at bridge on State Highway 675, 1.3 mi west of Monroe, and 1.6 mi upstream from Graham Creek. | 34.5 | 1981-84 | 9- 9-85 | 14.1 |
| 02030300 | Slate River near Dillwyn, Va. | Lat 37°37'08", long 78°29'10", Buckingham County, at bridge on State Highway 20, 0.3 mi downstream from Flat Creek, and 5.2 mi north of Dillwyn. | 154 | 1942,<br>1952-54,<br>1963,<br>1981-84 | 9- 9-85 | 54.2 |
| | | **CHOWAN RIVER BASIN** | | | | |
| 02046230 | Sappony Creek at Rt. 681, near Stony Creek, Va. | Lat 36°56'36", long 77°27'08", Sussex County, at bridge on State Highway 681, 1.5 mi upstream from mouth, and 2.5 mi west of Stony Creek. | 64.0 | 1981-84 | 9- 9-85 | 0 |
| 02051175 | Meherrin River near Northview, Va. | Lat 36°48'03", long 78°10'04", Mecklenburg County, at bridge on State Highway 636, 1.2 mi upstream from Crooked Creek, and 4.5 mi northeast of Northview. | 305 | 1982-84 | 9-10-85 | 24.2 |

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi$^2$) | Period of record | Measurements Date | Measurements Discharge (ft$^3$/s) |
|---|---|---|---|---|---|---|
| | | ROANOKE RIVER BASIN | | | | |
| 02054120 | North Fork Roanoke River near Lusters Gate, Va. | Lat 37°13'18", long 80°21'56", Montgomery County, at private road bridge off State Highway 723, 1.4 mi south of Lusters Gate, and 1.4 mi downstream from Indian Run. | 44.6 | 1969,<br>1982-84 | 9-12-85 | 12.3 |
| 02054650 | Mason Creek at Mason Cove, Va. | Lat 37°22'18", long 80°04'02", Roanoke County, at bridge on State Highway 864, at Mason Cove, and 1.9 mi upstream from Jumping Run Creek. | 11.9 | 1983-84 | 9-11-85 | 1.81 |
| 02059400 | North Fork Goose Creek near Montvale, Va. | Lat 37°22'14", long 79°41'55", Bedford County, at bridge on U.S. Highway 460, 0.1 mi upstream from junction with South Fork Goose Creek, and 1.7 mi southeast of Montvale. | 31.5 | 1952-54,<br>1981-84 | 9-12-85 | 11.1 |
| 02061000 | Big Otter River near Bedford, Va. | Lat 37°21'50", long 79°25'10", Bedford County, at bridge on U.S. Highway 221, 4.0 mi northeast of Bedford, and 8.9 mi upstream from Little Otter River. | 116 | 1942,<br>1944-60†,<br>1981-84 | 9- 9-85 | 56.4 |
| 02061200 | Little Otter River at Rt. 122, near Bedford, Va. | Lat 37°21'41", long 79°30'03", Bedford County, at bridge on State Highway 122, 0.4 mi north of Bedford. | 18.3 | 1942,<br>1952-54,<br>1978,<br>1981-84 | 9- 9-85 | 9.00 |
| 02063400 | Reddy Creek near Spring Mills, Va. | Lat 37°16'54", long 78°54'14", Appomattox County, at bridge on State Highway 679, 100 ft upstream from mouth, and 2.3 mi north of Spring Mills. | 12.6 | 1951-54,<br>1977,<br>1981-84 | 9-10-85 | 3.20 |
| | | KANAWHA RIVER BASIN | | | | |
| 03162415 | Helton Creek near Whitetop, Va. | Lat 36°36'33", long 81°33'52", Grayson County, at bridge on U.S. Highway 58, 2.0 mi upstream from Middle Fork, and 3.2 mi northeast of Whitetop. | 5.28 | 1983-84 | 9-11-85 | 3.82 |
| 03162650 | Wilson Creek at Volney, Va. | Lat 36°37'20", long 81°23'36", Grayson County, at bridge on U.S. Highway 58, 0.4 mi southwest of Volney. | 17.7 | 1983-84 | 9-11-85 | 4.42 |
| 03163500 | Elk Creek at Mt. Carmel Church, near Galax, Va. | Lat 36°41'53", long 81°03'26", Grayson County, along State Highway 650, at Mt. Carmel Church, 2.9 mi upstream from mouth, and 10 mi northwest of Galax. | 63.5 | 1982-84 | 9-11-85 | 12.8 |
| 03165350 | Brush Creek near Ivanhoe, Va. | Lat 36°45'59", long 80°59'05", Carroll County, at bridge on State Highway 94, 3.2 mi upstream from mouth, and 5.0 mi southwest of Ivanhoe. | 15.1 | 1982-84 | 9-11-85 | 2.63 |
| 03165750 | Blue Springs Creek near Cedar Springs, Va. | Lat 36°48'14", long 81°18'22", Smyth County, at bridge on State Highway 675, 0.3 mi downstream from Dry Creek, and 1.8 mi southwest of Cedar Springs. | 12.9 | 1983-84 | 9-11-85 | 2.57 |
| 03166400 | Stony Fork near Favonia, Va. | Lat 37°00'30", long 81°11'27", Wythe County, at bridge on U.S. Highway 52, 300 ft upstream from East Fork, and 3.1 mi north of Favonia. | 7.77 | 1983-84 | 9-12-85 | .191 |

† Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi²) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft³/s) |
| | | KANAWHA RIVER BASIN--Continued | | | | |
| 03167200 | Laurel Fork near Laurel Fork, Va. | Lat 36°44'34", long 80°31'49", Carroll County, at bridge on State Highway 638, 1.8 mi northwest of Laurel Fork, and 5.8 mi upstream from mouth. | 28.3 | 1982-84 | 9-12-85 | 28.7 |
| 03167700 | Beaverdam Creek at Hillsville, Va. | Lat 36°45'45", long 80°43'42", Carroll County, at culvert on U.S. Highway 58, at Hillsville, and 2.9 mi upstream from mouth. | 4.13 | 1952-55,<br>1982-84 | 9-12-85 | 2.73 |
| 03168750 | Thorne Springs Branch near Dublin, Va. | Lat 37°05'30", long 80°44'34", Pulaski County, at culvert on U.S. Highway 11, 2.8 mi west of Dublin, and 3.7 mi upstream from mouth. | 4.77 | 1957-70†,<br>1978,<br>1982-84 | 9-11-85 | .048 |
| 03169150 | Pine Creek near Floyd, Va. | Lat 36°57'03", long 80°17'03", Floyd County, at bridge on State Highway 682, 0.6 mi upstream from mouth, and 2.8 mi northeast of Floyd. | 10.7 | 1982-84 | 9-12-85 | 8.59 |
| 03169370 | Brush Creek near Riner, Va. | Lat 37°01'57", long 80°23'49", Montgomery County, at bridge on State Highway 616, 2.2 mi upstream from mouth, and 3.3 mi southeast of Riner. | 19.1 | 1982-84 | 9-12-85 | 2.57 |
| 03171400 | Meck Creek near Belspring, Va. | Lat 37°11'03", long 80°37'24", Pulaski County, at culvert on State Highway 617, 0.9 mi southwest of Belspring, and 1.5 mi upstream from mouth. | 7.92 | 1982-84 | 9-11-85 | 1.97 |
| 03171550 | Sinking Creek near Newport, Va. | Lat 37°18'40", long 80°30'55", Giles County, at bridge on State Highway 700, 1.6 mi northwest of Newport, and 6.9 mi upstream from mouth. | 65.4 | 1942,<br>1952-55,<br>1982-84 | 9-11-85 | 30.0 |
| 03171900 | Kimberling Creek near Holly Brook, Va. | Lat 37°10'38", long 80°58'54", Bland County, at bridge on State Highway 612, 0.5 mi upstream from East Wilderness Creek, and 1.8 mi southwest of Holly Brook. | 27.3 | 1983-84 | 9-12-85 | .433 |
| 03177600 | Bluestone River above Bluefield, Va. | Lat 37°13'57", long 81°18'00", Tazewell County, at private road bridge off State Highway 720, 0.2 mi west of Bluefield. | 16.7 | 1983-84 | 9-12-85 | 9.36 |
| | | BIG SANDY RIVER BASIN | | | | |
| 03213590 | Knox Creek at Kelsa, Va. | Lat 37°27'02", long 82°03'34", Buchanan County, on left bank at bridge on State Highway 697, 0.3 mi downstream from Pawpaw Creek, and 0.8 mi northeast of Kelsa. | 84.3 | 1980-81†,<br>1983-84 | 10-16-84<br>11-26-84<br>10- 1-85 | 3.59<br>17.3<br>1.94 |
| | | TENNESSEE RIVER BASIN | | | | |
| 03474000 | Middle Fork Holston River at Seven Mile Ford, Va. | Lat 36°48'26", long 81°37'20", Smyth County, on right bank at downstream side of bridge on U.S. Highway 11, at Seven Mile Ford, and 0.3 mi upstream from Meade Creek. | 132 | 1942-81†,<br>1983-84 | 11- 7-84<br>9- 9-85 | 42.0<br>33.6 |
| 03475700 | Spring Creek near Abingdon, Va. | Lat 36°40'43", long 82°02'29", Washington County, at culvert on U.S. Highway 11, 3.8 mi southwest of Abingdon. | 2.99 | 1969,<br>1983-84 | 9-10-85 | .956 |

† Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1985--Continued

| Station No. | Station Name | Location | Drainage area (mi$^2$) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft$^3$/s) |
| TENNESSEE RIVER BASIN--Continued | | | | | | |
| 03488450 | Brumley Creek at Brumley Gap, Va. | Lat 36°47'30", long 82°01'10", Washington County, on left bank 20 ft downstream from bridge on State Highway 611, 0.2 mi upstream from mouth, and 0.8 mi southeast of Brumley Gap. | 21.1 | 1979-81†,<br>1983-84 | 11- 7-84<br>9- 9-85 | 8.21<br>3.23 |
| 03489870 | Big Moccasin Creek at Collinwood, Va. | Lat 36°41'16", long 82°19'25", Russell County, at left downstream side of bridge on State Highway 612, 50 ft downstream from Meade Branch, and at Collinwood. | 41.9 | 1944,<br>1954,<br>1966-68†,<br>1973,<br>1983-84 | 11- 7-84<br>9-10-85 | 9.06<br>7.46 |
| 03489900 | Big Moccasin Creek near Gate City, Va. | Lat 36°38'47", long 82°33'12", Scott County, on left bank at downstream side of bridge on State Highway 71, 0.2 mi downstream from Franklin Branch, and 1.6 mi east of Gate City. | 79.6 | 1953-59†,<br>1983-84 | 11- 7-84<br>9-10-85 | 17.4<br>17.0 |
| 03521950 | Maiden Spring Creek near Thompson Valley, Va. | Lat 37°03'28", long 81°31'26", Tazewell County, at bridge on State Highway 16, 1.7 mi southeast of Thompson Valley. | 17.8 | 1947,<br>1952-55,<br>1983-84 | 9-12-85 | 8.36 |
| 03522000 | Little River at Wardell, Va. | Lat 37°02'16", long 81°47'52", Tazewell County, at bridge on U.S. Highway 19, 0.5 mi downstream from Indian Creek, and 0.5 mi northwest of Wardell. | 103 | 1949-52†,<br>1983-84 | 11- 7-84<br>9- 9-85 | 33.9<br>46.0 |
| 03523000 | Big Cedar Creek near Lebanon, Va. | Lat 36°54'29", long 82°02'20", Russell County, on right bank 200 ft upstream from U.S. Highway 19, 0.8 mi west of Lebanon, and 7.2 mi upstream from mouth. | 51.5 | 1952,<br>1953-59†,<br>1980,<br>1983-84 | 11- 7-84<br>9- 9-85 | 12.5<br>9.52 |
| 03524500 | Guest River at Coeburn, Va. | Lat 36°55'45", long 82°27'23", Wise County, on right bank 30 ft downstream from bridge on State Highway 72, 1.0 mi southeast of Coeburn, and 6.3 mi upstream from mouth. | 87.3 | 1949-59†,<br>1979-81†,<br>1983-84 | 11- 7-84<br>9-10-85 | 47.4<br>31.5 |
| 03524900 | Stony Creek at Ka, Va. | Lat 36°48'57", long 82°37'02", Scott County, on left bank on State Highway 619, 0.1 mi downstream from straight Fork, and at Ka. | 30.9 | 1980-81†,<br>1983-84 | 11- 7-84<br>9-10-85 | 22.2<br>7.10 |
| 03526000 | Copper Creek near Gate City, Va. | Lat 36°40'26", long 82°33'57", Scott County, on right bank at upstream side of bridge on State Highway 619, 2.6 mi northeast of Gate City. | 106 | 1948-72†,<br>1983-84 | 11- 7-84<br>9-10-85 | 26.2<br>40.9 |

† Operated as a continuous-record gaging station.

## Special study and miscellaneous sites

Discharge measurements in the following table were made at special study and miscellaneous sites throughout the State. Data for miscellaneous sites provided by the Virginia Water Control Board are noted by an "[a]".

Discharge measurements made at special study and miscellaneous sites during water year 1985

| Stream | Tributary to | Location | Drainage area ($mi^2$) | Measured previously (water years) | Measurements Date | Measurements Discharge ($ft^3/s$) |
|---|---|---|---|---|---|---|
| | | **NASSAWADOX CREEK BASIN** | | | | |
| Nassawadox Creek [a] | Chesapeake Bay | Lat 37°31'31", long 75°52'37", Northampton County, at culvert on State Highway 606, 2.7 mi upstream from Kelly Cove, and 3.5 mi north of Nassawadox. | b4.2 | 1968-84 | 12- 5-84 | *1.15 |
| | | | | | 2-27-85 | 3.48 |
| | | | | | 5-22-85 | *.62 |
| | | | | | 8-27-85 | *.29 |
| | | **POTOMAC RIVER BASIN** | | | | |
| 01626500 South River [a] | South Fork Shenandoah River | Lat 38°03'40", long 78°53'50", Waynesboro City, at bridge on Wayne Avenue just upstream from Baker Spring, at Waynesboro. | 144 | 1928-52† | 3- 4-85 | c165 |
| | | | | | 4- 8-85 | c125 |
| | | | | | 7- 3-85 | c57.5 |
| | | | | | 8-26-85 | c366 |
| | | | | | 9-30-85 | c56.7 |
| Accotink Creek | Accotink Bay | Lat 38°43'07", long 77°10'40", Fairfax County, on Elhers Road at Davison Airfield, at Fort Belvoir, and 2.5 mi upstream from mouth. | - | 1984 | 5-16-85 | 7.99 |
| | | | | | 3-12-85 | 43.6 |
| 01658425 Quantico Creek tributary No. 3 | Quantico Creek | Lat 38°36'27", long 77°23'59", Prince William County, along Farms to Forest Trail, 200 ft upstream from mouth, and 3.1 mi southeast of Independent Hill. | .65 | 1983-84 | 3-27-85 | .624 |
| 01658430 Quantico Creek | Potomac River | Lat 38°36'26", long 77°23'57", Prince William County, along Farms to Forest Trail, 300 ft downstream from unnamed tributary, and 3.1 mi southeast of Independent Hill. | 2.92 | 1983-84 | 3-27-85 | 2.73 |
| 01658450 Quantico Creek | Potomac River | Lat 38°36'09", long 77°22'09", Prince William County, at ford on Burma Fire Road, 5.0 mi southeast of Independent Hill. | 4.86 | 1973, 1983-84 | 10-23-84 | .808 |
| | | | | | 11-28-84 | 1.94 |
| | | | | | 12-27-84 | 2.09 |
| | | | | | 1-30-85 | 2.18 |
| | | | | | 2- 2-85 | 31.2 |
| | | | | | 2-13-85 | 19.4 |
| | | | | | 2-26-85 | 7.02 |
| | | | | | 3-26-85 | 5.50 |
| | | | | | 4-24-85 | 2.37 |
| | | | | | 5-29-85 | 4.22 |
| | | | | | 6-25-85 | .898 |
| 01658460 Quantico Creek | Potomac River | Lat 38°35'23", long 77°21'26", Prince William County, 50 ft downstream from Camp 4 Lake, 1.8 mi northwest of Dumfries. | 5.92 | 1983-84 | 10-23-84 | 1.08 |
| | | | | | 12- 2-84 | 4.82 |
| | | | | | 12-27-84 | 2.77 |
| | | | | | 2- 1-85 | 11.0 |
| | | | | | 2-13-85 | 25.4 |
| | | | | | 2-26-85 | 7.96 |
| | | | | | 3-26-85 | 7.22 |
| | | | | | 4-24-85 | 2.60 |
| | | | | | 5-29-85 | 6.90 |
| | | | | | 6-26-85 | .775 |
| 01658475 Quantico Creek | Potomac River | Lat 38°34'35", long 77°21'05", Prince William County, 100 ft upstream from pyrite mine, 1.1 mi northwest of Dumfries. | 6.80 | 1983-84 | 10-23-84 | 1.05 |
| | | | | | 12- 2-84 | 4.99 |
| | | | | | 12-27-84 | 3.70 |
| | | | | | 1-30-85 | 4.49 |
| | | | | | 2-26-85 | 7.89 |
| | | | | | 3-26-85 | 8.69 |
| | | | | | 4-24-85 | 3.44 |
| | | | | | 5-29-85 | 6.99 |
| | | | | | 6-25-85 | 1.67 |

* Base flow.
† Operated as a continuous-record gaging station.
a Provided by the Virginia Water Control Board.
b Approximately.
c Adjusted for pumpage.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area (mi$^2$) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft$^3$/s) |
| POTOMAC RIVER BASIN--Continued | | | | | | |
| 01658480 Quantico Creek | Potomac River | Lat 38°34'22", long 77°20'51", Prince William County, at Pyrite Mine Road, 100 ft upstream from South Fork Quantico Creek, 1,000 ft downstream from Pyrite Mine, and 0.8 mi west of Dumfries. | 6.90 | 1983-84† | 10-23-84 | 1.29 |
| | | | | | 11-28-84 | 3.06 |
| | | | | | 12-19-84 | 3.93 |
| | | | | | 1-29-85 | 3.02 |
| | | | | | 2- 1-85 | (d) |
| | | | | | 2- 2-85 | 71.1 |
| | | | | | 2-12-85 | 214 |
| | | | | | 2-13-85 | 30.9 |
| | | | | | 2-27-85 | 7.80 |
| | | | | | 3-28-85 | 7.46 |
| | | | | | 4-24-85 | 2.87 |
| | | | | | 5-29-85 | 7.60 |
| | | | | | 6-26-85 | 1.11 |
| 01658530 South Fork Quantico Creek | Quantico Creek | Lat 38°35'07", long 77°24'46", Prince William County, at bridge on Mawavi Fire Road, 0.2 mi upstream from Camp 5 Lake, and 2.2 mi northwest of Joplin. | 9.01 | 1982-84 | 10-23-84 | 1.50 |
| | | | | | 10-29-84 | 11.9 |
| | | | | | 11- 5-84 | 23.1 |
| | | | | | 11- 6-84 | 6.36 |
| | | | | | 11-20-84 | 12.8 |
| | | | | | 11-27-84 | 3.83 |
| | | | | | 12- 6-84 | 35.7 |
| | | | | | 12-17-84 | 5.70 |
| | | | | | 12-22-84 | 5.44 |
| | | | | | 1- 4-85 | 22.8 |
| | | | | | 1-29-85 | 4.58 |
| | | | | | 2- 2-85 | 64.2 |
| | | | | | 2-12-85 | 294 |
| | | | | | 2-26-85 | 15.9 |
| | | | | | 3-27-85 | 8.28 |
| | | | | | 4-24-85 | 3.35 |
| | | | | | 5-29-85 | 7.73 |
| | | | | | 6-25-85 | 3.45 |
| 01658540 South Fork Quantico Creek tributary No. 8 | South Fork Quantico Creek | Lat 38°34'47", long 77°24'47", Prince William County, at Camp 2, 50 ft upstream from Camp 5 Lake, and 2.0 mi northwest of Joplin. | .27 | 1983-84 | 10-24-84 | .138 |
| | | | | | 10-29-84 | .798 |
| | | | | | 11- 6-84 | .271 |
| | | | | | 11- 6-84 | .217 |
| | | | | | 11-19-84 | .500 |
| | | | | | 11-28-84 | .195 |
| | | | | | 12- 6-84 | .314 |
| | | | | | 12-27-84 | .223 |
| | | | | | 1- 4-85 | .376 |
| | | | | | 2- 1-85 | .838 |
| | | | | | 2- 2-85 | 1.12 |
| | | | | | 2-12-85 | 2.31 |
| | | | | | 2-13-85 | .571 |
| | | | | | 2-26-85 | .604 |
| | | | | | 3-26-85 | .300 |
| | | | | | 4-24-85 | .141 |
| | | | | | 5-29-85 | 1.01 |
| | | | | | 6-26-85 | .057 |
| 01658550 South Fork Quantico Creek | Quantico Creek | Lat 38°34'38", long 77°24'36", Prince William County, 400 ft downstream from Camp 5 Lake, 1.7 mi northwest of Joplin. | 9.62 | 1982,<br>1983-84† | 10-23-84 | 2.21 |
| | | | | | 11-27-84 | 5.00 |
| | | | | | 12-18-84 | 5.88 |
| | | | | | 1-30-85 | 4.79 |
| | | | | | 2- 2-85 | 140 |
| | | | | | 2-13-85 | 40.3 |
| | | | | | 2-26-85 | 15.3 |
| | | | | | 3-27-85 | 11.4 |
| | | | | | 4-24-85 | 3.72 |
| | | | | | 5-29-85 | 10.9 |
| | | | | | 6-25-85 | 4.52 |
| 01658602 South Fork Quantico Creek tributary No. 1 | South Fork Quantico Creek | Lat 38°34'35", long 77°22'53", Prince William County, 100 ft upstream from mouth, 1.0 mi north of Joplin. | 1.31 | 1975,<br>1982,<br>1984 | 2-13-85 | 4.55 |
| | | | | | 3-27-85 | 1.52 |

† Operated as a continuous-record gaging station.
d Frozen.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area (mi²) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft³/s) |
| POTOMAC RIVER BASIN--Continued | | | | | | |
| 01658603<br>South Fork Quantico Creek | Quantico Creek | Lat 38°34'34", long 77°22'47", Prince William County, at park road bridge, 1.1 mi north of Joplin. | 12.9 | 1983-84 | 10-23-84 | 2.91 |
| | | | | | 10-29-84 | 20.6 |
| | | | | | 11- 5-84 | 45.6 |
| | | | | | 11- 5-84 | 37.2 |
| | | | | | 11- 6-84 | 12.6 |
| | | | | | 11-20-84 | 19.8 |
| | | | | | 11-27-84 | 5.19 |
| | | | | | 12- 6-84 | 50.1 |
| | | | | | 12-17-84 | 7.79 |
| | | | | | 12-22-84 | 10.2 |
| | | | | | 1- 4-85 | 29.5 |
| | | | | | 1-29-85 | 7.06 |
| | | | | | 2- 2-85 | 203 |
| | | | | | 2-12-85 | 431 |
| | | | | | 2-26-85 | 15.9 |
| | | | | | 3-27-85 | 13.2 |
| | | | | | 4-24-85 | 5.27 |
| | | | | | 5-29-85 | 13.6 |
| | | | | | 6-25-85 | 6.39 |
| 01658605<br>South Fork Quantico Creek tributary No. 2 | South Fork Quantico Creek | Lat 38°34'31", long 77°22'31", Prince William County, 10 ft upstream from mouth, 1.0 mi northeast of Joplin. | .46 | 1975,<br>1982,<br>1984 | 2- 2-85 | 2.74 |
| | | | | | 2-12-85 | 7.48 |
| | | | | | 2-13-85 | 1.53 |
| | | | | | 3-27-85 | 1.42 |
| 01658608<br>South Fork Quantico Creek tributary No. 4 | South Fork Quantico Creek | Lat 38°34'0[illegible]", long 77°21'56", Prince William County, 15 ft upstream from mouth, 1.2 mi northeast of Joplin. | .12 | 1982,<br>1984 | 2- 1-85 | .515 |
| | | | | | 2-12-85 | .915 |
| | | | | | 2-13-85 | .353 |
| | | | | | 3-26-85 | .147 |
| 01658610<br>South Fork Quantico Creek | Quantico Creek | Lat 38°34'03", long 77°21'54", Prince William County, at bridge on park road at Carters Day Camp, 1.2 mi northeast of Joplin. | 14.5 | 1975,<br>1982-84 | 10-23-84 | 3.79 |
| | | | | | 10-29-84 | 29.6 |
| | | | | | 10-29-84 | 20.1 |
| | | | | | 11- 5-84 | 56.7 |
| | | | | | 11- 5-84 | 39.9 |
| | | | | | 11- 6-84 | 13.4 |
| | | | | | 11-19-84 | 51.2 |
| | | | | | 11-27-84 | 6.12 |
| | | | | | 12- 6-84 | 61.5 |
| | | | | | 12-17-84 | 8.88 |
| | | | | | 12-22-84 | 10.6 |
| | | | | | 1- 4-85 | 32.0 |
| | | | | | 1-29-85 | 11.2 |
| | | | | | 2- 1-85 | 32.4 |
| | | | | | 2-26-85 | 14.6 |
| | | | | | 3-26-85 | 17.1 |
| | | | | | 4-24-85 | 6.26 |
| | | | | | 5-29-85 | 18.3 |
| | | | | | 6-25-85 | 6.41 |
| 01658612<br>South Fork Quantico Creek tributary No. 3 | South Fork Quantico Creek | Lat 38°34'02", long 77°21'52", Prince William County, 20 ft upstream from mouth, 1.2 mi northeast of Joplin. | .18 | 1982,<br>1984 | 2- 1-85 | .869 |
| | | | | | 3-26-85 | .271 |
| 01658618<br>Mary Bird Branch | South Fork Quantico Creek | Lat 38°34'04", long 77°21'39", Prince William County, 70 ft upstream from mouth, 1.3 mi west of Dumfries. | .80 | 1984 | 2- 1-85 | 4.13 |
| | | | | | 2-13-85 | 3.14 |
| | | | | | 3-26-85 | .948 |
| 01658625<br>South Fork Quantico Creek tributary No. 5 | South Fork Quantico Creek | Lat 38°33'49", long 77°21'28", Prince William County, at culvert on Orenda Fire Road, near Camp 3, 0.1 mi upstream from mouth, and 1.1 mi west of Dumfries. | .19 | 1982-84 | 10-23-84 | .18 |
| | | | | | 10-29-84 | .223 |
| | | | | | 11- 5-84 | .307 |
| | | | | | 11- 6-84 | .160 |
| | | | | | 11-19-84 | .682 |
| | | | | | 11-27-84 | .099 |
| | | | | | 12- 6-84 | .301 |
| | | | | | 12-17-84 | .195 |
| | | | | | 1-29-85 | .154 |
| | | | | | 2- 1-85 | 1.23 |
| | | | | | 2-12-85 | 1.88 |
| | | | | | 2-13-85 | .923 |
| | | | | | 2-13-85 | .684 |
| | | | | | 2-26-85 | .410 |
| | | | | | 3-26-85 | .284 |
| | | | | | 4-24-85 | .160 |
| | | | | | 5-29-85 | .161 |
| | | | | | 6-25-85 | .076 |

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area (mi²) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft³/s) |
| | | POTOMAC RIVER BASIN--Continued | | | | |
| 01658630 South Fork Quantico Creek | Quantico Creek | Lat 38°33'59", long 77°21'12", Prince William County, at ford on Orenda Fire Road, 0.8 mi west of Dumfries. | 16.2 | 1982 | 2- 1-85 | 45.2 |
| | | | | | 2-13-85 | 60.9 |
| 01658635 South Fork Quantico Creek tributary No. 6 | South Fork Quantico Creek | Lat 38°34'00", long 77°21'11", Prince William County, 75 ft upstream from mouth, 0.8 mi west of Dumfries. | .21 | 1982, 1984 | 3-26-85 | .222 |
| 01658650 South Fork Quantico Creek | Quantico Creek | Lat 38°34'18", long 77°20'57", Prince William County, 0.1 mi upstream from mouth, 0.8 mi west of Dumfries. | 16.6 | 1973, 1983-84‡ | 10-23-84 | 3.99 |
| | | | | | 11-28-84 | 6.54 |
| | | | | | 12-19-84 | 9.65 |
| | | | | | 1-29-85 | 9.41 |
| | | | | | 2- 1-85 | 47.0 |
| | | | | | 2- 2-85 | 176 |
| | | | | | 2-13-85 | 72.6 |
| | | | | | 2-27-85 | 20.8 |
| | | | | | 3-28-85 | 16.3 |
| | | | | | 4-24-85 | 7.37 |
| | | | | | 5-30-85 | 7.69 |
| | | | | | 6-26-85 | 3.07 |
| 01658653 Quantico Creek tributary No. 1 | Quantico Creek | Lat 38°34'48", long 77°20'37", Prince William County, at private road, 0.9 mi northwest of Dumfries. | 1.18 | 1984 | 2- 1-85 | 8.13 |
| | | | | | 2-13-85 | 4.76 |
| | | | | | 3-28-85 | 1.22 |
| | | JAMES RIVER BASIN | | | | |
| Bubbling Spring [a] | Lick Run | Lat 37°55'37", long 79°37'32", Bath County, at culvert on State Highway 630, 3.5 mi southwest of Millboro. | - | - | 8-15-85 | *.81 |
| Unnamed tributary | James River | Lat 37°25'19", long 77°26'47", Chesterfield County, 200 ft upstream from mouth, downstream from fence on National Guard property. | - | - | 9-21-84† | .191 |
| | | | | | 9-21-84† | .223 |
| | | | | | 9-21-84† | .182 |
| | | | | | 9-21-84† | .210 |
| | | | | | 9-21-84† | .199 |
| | | | | | 9-26-84† | .217 |
| | | | | | 9-26-84† | .217 |
| 02042060 Swift Creek [a] | Appomattox River | Lat 37°16'58", long 77°24'42", Chesterfield County-Colonial Heights City line, 200 ft downstream from bridge on U.S. Highway 1, 4.7 mi upstream from mouth. | - | 1984 | 10-18-84 | 8.42 |
| 02042260 Chickahominy River | James River | Lat 37°41'43", long 77°35'34", Hanover-Henrico County line, at bridge on State Highway 624. | - | - | 3-14-85 | 1.46 |
| | | | | | 8- 8-85 | (f) |
| | | | | | 8-16-85 | e.002 |
| 02042270 Chickahominy River | James River | Lat 37°41'10", long 77°32'35", Hanover County, at bridge on U.S. Highway 33, 2.7 mi northwest of Glen Allen. | - | 1976 | 3-14-85 | 7.25 |
| | | | | | 8- 8-85 | 4.79 |
| | | | | | 8-16-85 | 1.28 |
| 02042275 Chickahominy River | James River | Lat 37°42'02", long 77°30'49", Hanover-Henrico County line, at bridge on State Highway 625, 2.1 mi north of Glen Allen. | - | 1984 | 3-14-85 | 9.49 |
| | | | | | 8- 8-85 | 28.7 |
| | | | | | 8-16-85 | .937 |

* Base flow.
† Not previously published.
‡ Operated as a continuous-record gaging station.
a Provided by the Virginia Water Control Board.
e Estimated.
f Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

JAMES RIVER BASIN--Continued

| Stream | Tributary to | Location | Drainage area (mi²) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft³/s) |
| 02042280<br>Chickahominy River | James River | Lat 37°41'38", long 77°29'28", Hanover-Henrico County line, at bridge on State Highway 626, 1.2 mi south of Elmont. | 56 | 1957-58,<br>1976,<br>1984 | 3-14-85<br>8- 8-85<br>8-16-85 | 9.55<br>3.53<br>2.26 |
| 02042282<br>Chickahominy River | James River | Lat 37°40'40", long 77°27'23", Hanover-Henrico County line, at bridge on Telegraph Road, 1.0 mi northeast of Greenwood. | - | 1984 | 3-14-85<br>8- 8-85<br>8-16-85 | 11.1<br>4.75<br>2.77 |
| 02042284<br>Stony Run | Chickahominy River | Lat 37°41'05", long 77°26'58", Hanover County, 50 ft upstream from culvert on State Highway 656, 3.0 mi northwest of Atlee. | 17.9 | 1984 | 3-13-85<br>8- 8-85<br>8-16-85 | 6.02<br>8.31<br>.581 |
| 02042286<br>Chickahominy River | James River | Lat 37°39'09", long 77°25'52", Hanover-Henrico County line, at westbound lane of Interstate Highway 295, 1.4 mi west of Atlee. | - | 1984 | 3-14-85<br>3-15-85<br>8- 8-85<br>8-16-85 | 13.6<br>18.2<br>3.51<br>2.06 |
| 02042288<br>Chickahominy River | James River | Lat 37°36'41", long 77°22'18", Hanover-Henrico County line, at bridge on State Highway 627, 2.2 mi northeast of Richmond. | - | 1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 19.0<br>3.05<br>(f) |
| 02042427<br>Upham Brook | Chickahominy River | Lat 37°36'37", long 77°24'34", Henrico County, at bridge on State Highway 627, 2.2 mi northeast of Richmond. | - | 1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 13.4<br>1.76<br>.324 |
| 02042430<br>Chickahominy River | James River | Lat 37°35'43", long 77°22'57", Hanover-Henrico County line, at bridge on U.S. Highway 360, 1.0 mi south of Mechanicsville. | - | - | 3-15-85<br>8- 8-85<br>8-16-85 | (f)<br>(f)<br>(f) |
| 02042433<br>Beaverdam Creek | Chickahominy River | Lat 37°35'45", long 77°21'32", Hanover County, at bridge on State Highway 156, 0.7 mi southeast of Mechanicsville. | - | 1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 8.01<br>4.68<br>3.05 |
| 02042435<br>Chickahominy River | James River | Lat 37°34'36", long 77°20'03", Hanover-Henrico County line, at bridge on State Highway 615, 1.5 mi north of Highland Springs. | - | 1976,<br>1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 41.2<br>34.0<br>32.7 |
| 02042440<br>Chickahominy River | James River | Lat 37°33'07", long 77°16'17", Hanover-Henrico County line, at bridge on State Highway 156, 2.7 mi northeast of Seven Pines. | - | 1953-54,<br>1984 | 3-15-85<br>8- 8-85<br>8-16-35 | 54.9<br>53.7<br>48.4 |
| 02042443<br>Chickahominy River | James River | Lat 37°31'03", long 77°12'34", New Kent-Henrico County line, at bridge on Interstate Highway 64, 2.2 mi northwest of White Oak Swamp. | 164 | - | 8- 8-85<br>8-16-85 | 78.7<br>61.0 |
| 02042445<br>Chickahominy River | James River | Lat 37°30'53", long 77°12'19", New Kent-Henrico County line, at bridge on U.S. Highway 60, 2.0 mi northwest of White Oak Swamp. | - | - | 3-15-85 | 67.6 |
| 02042455<br>White Oak Swamp | Chickahominy River | Lat 37°28'05", long 77°12'32", Henrico County, at bridge on State Highway 156, at Elko. | - | 1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 8.65<br>1.76<br>1.73 |
| 02042465<br>Toe Ink Swamp | Chickahominy River | Lat 37°29'03", long 77°07'56", New Kent County, at outfall, downstream from Kent Lake dam, and 1.5 mi north of Roxbury. | - | 1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 4.60<br>1.37<br>1.13 |
| 02042470<br>Chickahominy River | James River | Lat 37°28'11", long 77°08'17", New Kent-Charles City County line, 600 ft upstream from bridge on State Highway 609, 0.4 mi north of Roxbury. | - | 1942,<br>1984 | 3-15-85<br>8- 8-85<br>8-16-85 | (f)<br>71.6<br>20.6 |

f Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area (mi$^2$) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft$^3$/s) |
| | | JAMES RIVER BASIN--Continued | | | | |
| 02042474 Possum Run | Chickahominy River | Lat 37°27'35", long 77°07'48", Charles City County, at culvert on State Highway 609, 0.7 mi east of Roxbury. | - | 1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 2.62<br>.338<br>.291 |
| 02042480 Schiminoe Creek | Chickahominy River | Lat 37°27'14", long 77°04'52", New Kent County, at culvert on U.S. Highway 60. | - | 1968,<br>1984 | 3-15-85<br>8- 8-85<br>8-16-85 | 2.34<br>.423<br>.357 |
| 02042500 Chickahominy River | James River | Lat 37°26'10", long 77°03'40", New Kent County, 600 ft downstream from State Highway 618. | 248 | 1942-84† | 3-15-85<br>8- 8-85<br>8-16-85 | 114<br>140<br>62.6 |
| 02042610 Jones Run | Chickahominy River | Lat 37°26'28", long 77°02'48", New Kent County, at Chesapeake and Ohio railroad bridge, at Providence Forge. | - | - | 3-15-85<br>8- 8-85<br>8-16-85 | 8.07<br>4.18<br>3.22 |
| | | CHOWAN RIVER BASIN | | | | |
| 02044500 Nottoway River | Chowan River | Lat 36°59'00", long 77°48'00", Brunswick-Dinwiddie County line, 100 ft downstream from bridge on State Highway 612, 2.6 mi northwest of Rawlings. | 185 | 1951-84† | 9-11-85 | 27.1 |
| Nottoway River | Chowan River | Lat 37°58'30", long 77°46'11", Brunswick-Dinwiddie County line, 100 ft downstream from Baskerville Mill Dam, 300 ft downstream from State Highway 610, and 1.9 mi north of Rawlings. | - | 1984 | 9-11-85 | 26.4 |
| 02045000 Nottoway River | Chowan River | Lat 36°56'45", long 77°44'01", Brunswick-Dinwiddie County line, under bridge on northbound lane of U.S. Highway 1, 2.5 mi south of McKenney. | 362 | 1942,<br>1946-50†,<br>1963,<br>1984 | 9-11-85 | 26.0 |
| Waqua Creek | Nottoway River | Lat 36°55'07", long 77°44'10", Brunswick County, 125 ft downstream from bridge on State Highway 712, 4.3 mi south of McKenney. | - | 1984 | 9-11-85 | 2.00 |
| Sturgeon Creek | Nottoway River | Lat 36°53'19", long 77°48'29", Brunswick County, 25 ft upstream from bridge on State Highway 631, 5.0 mi north of Smoky Ordinary. | - | 1976,<br>1984 | 9-11-85 | 2.03 |
| Nottoway River | Chowan River | Lat 36°54'04", long 77°40'25", Brunswick-Dinwiddie County line, 100 ft downstream from bridge on State Highway 609, 5.6 mi southeast of McKenney. | - | 1963,<br>1984 | 9-11-85 | 33.0 |
| Buckskin Creek | Nottoway River | Lat 36°53'43", long 77°37'53", Dinwiddie County, 300 ft upstream from bridge on unnamed road, 0.5 mi upstream from mouth, and 2.7 mi south of Cherry Hill. | - | 1984 | 9-11-85 | (f) |
| Nottoway River | Chowan River | Lat 36°50'56", long 77°33'51", Greensville County, 600 ft downstream from bridge on State Highway 619, 2.1 mi northeast of Purdy. | - | 1984 | 9-11-85 | 35.6 |
| Nottoway River | Chowan River | Lat 36°50'52", long 77°29'36", Sussex-Greensville County line, 150 ft downstream from bridge on State Highway 630, just upstream from pumping station, and 2.1 mi northwest of Jarratt. | - | 1984 | 9-11-85<br>9-11-85 | 34.8<br>c24.3 |

† Operated as a continuous-record gaging station.
c Adjusted for pumpage.
f Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area ($mi^2$) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge ($ft^3/s$) |
| | | CHOWAN RIVER BASIN--Continued | | | | |
| Nottoway River | Chowan River | Lat 36°52'57", long 77°26'21", Sussex County, 75 ft downstream from bridge on State Highway 645, 4.1 mi north of Jarratt. | - | 1984 | 9-11-85 | 32.1 |
| 02045500 Nottoway River | Chowan River | Lat 36°54'00", long 77°24'00", Sussex County, 600 ft upstream from bridge on U.S. Highway 301, 3.3 mi south of Stony Creek. | 579 | 1930-84† | 9-11-85 | 32.4 |
| Nottoway River | Chowan River | Lat 36°57'00", long 77°22'52", Sussex County, 150 ft downstream from bridge on State Highway 40, 0.6 mi east of Stony Creek, and 0.9 mi upstream from Stony Creek. | - | 1984 | 9-11-85 | 33.1 |
| Stony Creek | Nottoway River | Lat 36°56'58", long 77°23'34", Sussex County, at bridge on northbound lane of Interstate Highway 95, at Stony Creek. | - | 1952-54,<br>1963,<br>1984 | 9-12-85 | 4.24 |
| 02046370 Rowanty Creek | Nottoway River | Lat 36°58'57", long 77°23'32", Sussex County, at bridge on State Highway 602, 2.5 mi northeast of Stony Creek. | - | 1981-84 | 9-12-85 | .946 |
| Nottoway River | Chowan River | Lat 36°59'47", long 77°19'30", Sussex County, 200 ft downstream from bridge on State Highway 637, 5.0 mi northeast of Stony Creek. | - | 1984 | 9-12-85 | 45.1 |
| Nottoway River | Chowan River | Lat 36°58'37", long 77°16'08", Sussex County, at bridge on State Highway 626, 4.3 mi north of Sussex. | - | 1984 | 9-12-85 | 42.7 |
| Nebletts Mill Run | Nottoway River | Lat 36°58'39", long 77°13'05", Sussex County, at bridge on State Highway 35, 3.2 mi northwest of Homeville. | 32.7 | 1980,<br>1984 | 9-12-85 | (f) |
| Nottoway River | Chowan River | Lat 36°53'48", long 77°12'06", Sussex County, at bridge on State Highway 634, 2.8 mi west of Littleton. | - | 1984 | 9-12-85 | 47.0 |
| Hunting Quarter Swamp | Nottoway River | Lat 36°52'42", long 77°13'36", Sussex County, at bridge on State Highway 632, 4.6 mi southwest of Littleton. | - | 1942,<br>1984 | 9-12-85 | (f) |
| Nottoway River | Chowan River | Lat 36°51'32", long 77°11'24", Sussex County, 40 ft downstream from bridge on State Highway 631, 3.2 mi southwest of Littleton. | - | 1984 | 9-12-85 | 53.6 |
| Raccoon Creek | Nottoway River | Lat 36°48'11", long 77°12'28", Southampton County, at bridge on State Highway 608, 4.7 mi northwest of Sebrell. | 65.0 | 1942,<br>1952-54,<br>1978,<br>1980-84 | 9-12-85 | (f) |
| Three Creek | Nottoway River | Lat 36°46'32", long 77°11'08", Southampton County, at bridge on State Highway 609, 3.3 mi west of Sebrell. | 215 | 1942, 1944,<br>1952-54,<br>1978, 1980,<br>1984 | 9-12-85 | (f) |
| 02047000 Nottoway River | Chowan River | Lat 36°46'13", long 77°09'59", Southampton County, 1,900 ft downstream from bridge on State Highway 653, 2.5 mi southwest of Sebrell. | 1,421 | 1942-84 | 9-12-85 | 57.4 |

† Operated as a continuous-record gaging station.
f Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area (mi²) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft³/s) |
| | | CHOWAN RIVER BASIN--Continued | | | | |
| Buckhorn Swamp [a] | Nottoway River | Lat 36°43'17", long 77°09'35", Southampton County, at bridge on State Highway 652, 5.0 mi west of Courtland. | - | 1982-84 | 10-23-84 | 0.42 |
| | | | | | 12- 4-84 | 9.13 |
| | | | | | 1-15-85 | 7.29 |
| | | | | | 2-26-85 | 62.3 |
| | | | | | 4-10-85 | 1.98 |
| | | | | | 5-21-85 | .19 |
| | | | | | 7-10-85 | 0 |
| | | | | | 8-22-85 | .66 |
| Buckhorn Swamp [a] | Nottoway River | Lat 36°45'00", long 77°09'33", Southampton County, at bridge on State Highway 651, 5.4 mi northwest of Courtland. | - | 1982-84 | 10-23-84 | 0 |
| | | | | | 12- 4-84 | 20.2 |
| | | | | | 1-15-85 | 10.3 |
| | | | | | 2-26-85 | 94.9 |
| | | | | | 4-10-85 | 3.67 |
| | | | | | 5-21-85 | .35 |
| | | | | | 7-10-85 | .08 |
| | | | | | 8-22-85 | .89 |
| Nottoway Swamp [a] | Nottoway River | Lat 36°43'22", long 76°59'43", Southampton County, at bridge on State Highway 611, 2.4 mi northwest of Hunterdale. | - | 1982-84 | 10-24-84 | 0 |
| | | | | | 12- 5-84 | 11.5 |
| | | | | | 1- 5-85 | 6.64 |
| | | | | | 2-26-85 | 49.2 |
| | | | | | 4-10-85 | 3.18 |
| | | | | | 5-21-85 | .58 |
| | | | | | 7-10-85 | 0 |
| | | | | | 8-22-85 | 6.76 |
| | | BIG SANDY RIVER BASIN | | | | |
| Unnamed mine drain | Aus Keen Fork | Lat 37°12'16", long 81°56'57", Buchanan County, below mouth of abandoned mine, 100 ft upstream from Aus Keen Fork, off State Highway 629, and 2.0 mi east of Keen Mountain. | - | - | 10-23-84 | .012 |
| | | | | | 11-13-84 | .012 |
| | | | | | 12-18-84 | .021 |
| | | | | | 1-29-85 | .069 |
| | | | | | 2-20-85 | .123 |
| | | | | | 3-26-85 | .106 |
| | | | | | 4- 8-85 | .127 |
| | | | | | 5-22-85 | .046 |
| | | | | | 6-25-85 | .051 |
| | | | | | 7-23-85 | .036 |
| | | | | | 8-27-85 | .040 |
| | | | | | 9-24-85 | .030 |
| Unnamed mine drain | Dismal Creek | Lat 37°13'51", long 81°48'28", Buchanan County, below mouth of abandoned mine, 100 ft upstream from Dismal Creek, and 2.4 mi east of Whitewood. | - | - | 10-22-84 | .124 |
| | | | | | 11-13-84 | .108 |
| | | | | | 12-18-84 | .191 |
| | | | | | 1-28-85 | .887 |
| | | | | | 2-19-85 | 1.01 |
| | | | | | 3-25-85 | .891 |
| | | | | | 4- 8-85 | .895 |
| | | | | | 5-21-85 | .554 |
| | | | | | 6-25-85 | .781 |
| | | | | | 7-22-85 | .398 |
| | | | | | 8-26-85 | .405 |
| | | | | | 9-23-85 | .227 |
| Unnamed mine drain | Laurel Fork | Lat 37°11'23", long 81°48'16", Buchanan County, below mouth of abandoned mine, 100 ft upstream from Laurel Fork, and 1.1 mi west of Jewell Ridge. | - | - | 10-22-84 | .063 |
| | | | | | 11-13-84 | .162 |
| | | | | | 12-18-84 | .305 |
| | | | | | 1-28-85 | .515 |
| | | | | | 2-19-85 | .618 |
| | | | | | 3-25-85 | .651 |
| | | | | | 4- 8-85 | .682 |
| | | | | | 5-21-85 | .391 |
| | | | | | 6-25-85 | .752 |
| | | | | | 7-22-85 | .329 |
| | | | | | 8-26-85 | .362 |
| | | | | | 9-23-85 | .186 |
| Unnamed mine drain | Laurel Fork | Lat 37°11'26", long 81°49'11", Buchanan County, below mouth of abandoned mine, 200 ft upstream from Laurel Fork, and 1.9 mi west of Jewell Ridge. | - | - | 10-22-84 | .103 |
| | | | | | 11-13-84 | .181 |
| | | | | | 12-18-84 | .344 |
| | | | | | 1-28-85 | .286 |
| | | | | | 2-19-85 | .417 |
| | | | | | 3-25-85 | .359 |
| | | | | | 4- 8-85 | .343 |
| | | | | | 5-21-85 | .286 |
| | | | | | 6-25-85 | .296 |
| | | | | | 7-22-85 | .258 |
| | | | | | 8-26-85 | .233 |
| | | | | | 9-23-85 | .233 |

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area (mi$^2$) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft$^3$/s) |
| | | BIG SANDY RIVER BASIN--Continued | | | | |
| Unnamed mine drain | Burnt Chestnut Branch | Lat 37°14'27", long 81°54'03", Buchanan County, below mouth of abandoned mine, 300 ft upstream from Burnt Chestnut Branch, and 5.2 mi northeast of Keen Mountain. | - | - | 10-22-84 | 0.053 |
| | | | | | 11-13-84 | .076 |
| | | | | | 12-18-84 | .145 |
| | | | | | 1-28-85 | .302 |
| | | | | | 2-20-85 | .373 |
| | | | | | 3-25-85 | .405 |
| | | | | | 4- 8-85 | .450 |
| | | | | | 5-22-85 | .270 |
| | | | | | 6-25-85 | .257 |
| | | | | | 7-22-85 | .161 |
| | | | | | 8-26-85 | .153 |
| | | | | | 9-23-85 | .097 |
| Unnamed mine drain | Burnt Popular Fork | Lat 37°18'33", long 82°11'05", Buchanan County, below mouth of abandoned mine, 50 ft upstream from Burnt Popular Fork, and 1.2 mi west of Harmon Junction. | - | - | 10-23-84 | .436 |
| | | | | | 11-14-84 | .189 |
| | | | | | 12-19-84 | .284 |
| | | | | | 1-29-85 | .350 |
| | | | | | 2-20-85 | .645 |
| | | | | | 3-26-85 | .716 |
| | | | | | 4- 9-85 | .670 |
| | | | | | 5-22-85 | .582 |
| | | | | | 6-26-85 | .563 |
| | | | | | 7-23-85 | .327 |
| | | | | | 8-27-85 | .341 |
| | | | | | 9-24-85 | .349 |
| Unnamed mine drain | Levisa Fork | Lat 37°21'09", long 82°11'24", Buchanan County, below mouth of abandoned mine, 200 ft upstream from Levisa Fork off U.S. Highway 460, and at Big Rock. | - | - | 10-23-84 | .031 |
| | | | | | 11-14-84 | .017 |
| | | | | | 12-18-84 | .057 |
| | | | | | 1-29-85 | .018 |
| | | | | | 2-20-85 | .095 |
| | | | | | 3-26-85 | .110 |
| | | | | | 4- 9-85 | .111 |
| | | | | | 5-22-85 | .057 |
| | | | | | 6-25-85 | .035 |
| | | | | | 7-23-85 | .006 |
| | | | | | 8-27-85 | .025 |
| | | | | | 9-24-85 | .021 |
| Unnamed mine drain | Dog Fork | Lat 37°19'23", long 82°11'50", Buchanan County, below mouth of abandoned mine, 50 ft upstream from Dog Fork, and 2.0 mi north of Harmon. | - | - | 10-23-84 | .031 |
| | | | | | 11-15-84 | .040 |
| | | | | | 12-19-84 | .051 |
| | | | | | 1-29-85 | .075 |
| | | | | | 2-20-85 | .141 |
| | | | | | 3-26-85 | .133 |
| | | | | | 4- 9-85 | .136 |
| | | | | | 5-22-85 | .085 |
| | | | | | 6-26-85 | .075 |
| | | | | | 7-23-85 | .041 |
| | | | | | 8-27-85 | .083 |
| | | | | | 9-24-85 | .063 |
| Unnamed mine drain | Tiller Fork | Lat 37°03'13", long 82°09'50", Dickenson County, below mouth of abandoned mine, 200 ft upstream from Tiller Fork off State Highway 601, and 2.1 mi south of Duty. | - | - | 10-24-84 | .175 |
| | | | | | 11-14-84 | .158 |
| | | | | | 12-19-84 | .110 |
| | | | | | 1-30-85 | .351 |
| | | | | | 2-21-85 | 1.08 |
| | | | | | 3-27-85 | .811 |
| | | | | | 4-10-85 | .855 |
| | | | | | 5-24-85 | .485 |
| | | | | | 6-24-85 | .411 |
| | | | | | 7-23-85 | .300 |
| | | | | | 8-27-85 | .358 |
| | | | | | 9-24-85 | .279 |
| Unnamed mine drain | Fryingpan Creek | Lat 37°04'13", long 82°13'04", Dickenson County, below mouth of abandoned mine, 200 ft upstream from Fryingpan Creek off State Highway 600, and at Bucu. | - | - | 10-24-84 | 3.27 |
| | | | | | 11-15-84 | 3.32 |
| | | | | | 12-19-84 | 4.38 |
| | | | | | 1-30-85 | 5.22 |
| | | | | | 2-21-85 | 12.9 |
| | | | | | 3-27-85 | 9.08 |
| | | | | | 4-10-85 | 7.89 |
| | | | | | 5-24-85 | 6.08 |
| | | | | | 6-24-85 | 5.50 |
| | | | | | 7-29-85 | 3.72 |
| | | | | | 8-29-85 | 3.74 |
| | | | | | 9-26-85 | 3.12 |

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area (mi²) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (ft³/s) |
| BIG SANDY RIVER BASIN--Continued | | | | | | |
| Unnamed mine drain | Phillips Creek | Lat 37°02'48", long 82°42'11", Wise County, below mouth of abandoned mine, 200 ft upstream from Phillips Creek, and 2.1 mi south of Flat Gap. | - | - | 10-24-84 | 0.143 |
| | | | | | 11-14-84 | .184 |
| | | | | | 12-19-84 | .200 |
| | | | | | 1-31-85 | .290 |
| | | | | | 2-22-85 | .553 |
| | | | | | 5-23-85 | .324 |
| | | | | | 6-27-85 | .274 |
| | | | | | 7-24-85 | .145 |
| | | | | | 8-28-85 | .207 |
| | | | | | 9-25-85 | .141 |
| Unnamed mine drain | Meade Fork | Lat 37°07'36", long 82°34'04", Wise County, below mouth of abandoned mine, 250 ft upstream from Meade Fork, and 1.6 mi east of Pound. | - | - | 10-23-84 | .454 |
| | | | | | 11-14-84 | .597 |
| | | | | | 12-19-84 | .644 |
| | | | | | 1-31-85 | .634 |
| | | | | | 2-21-85 | .535 |
| | | | | | 3-28-85 | .679 |
| | | | | | 4- 9-85 | .573 |
| | | | | | 5-23-85 | .746 |
| | | | | | 6-26-85 | .515 |
| | | | | | 7-24-85 | .597 |
| | | | | | 8-28-85 | .547 |
| | | | | | 9-25-85 | .584 |
| Unnamed mine drain | Georges Fork | Lat 37°07'46", long 82°32'07", Dickenson County, below mouth of abandoned mine, 1,000 ft upstream from Georges Fork, and 5.1 mi southwest of Clintwood. | - | - | 10-23-84 | .525 |
| | | | | | 11-14-84 | .585 |
| | | | | | 12-19-84 | .556 |
| | | | | | 1-29-85 | .644 |
| | | | | | 2-21-85 | .901 |
| | | | | | 3-26-85 | .777 |
| | | | | | 4- 9-85 | .773 |
| | | | | | 5-23-85 | .600 |
| | | | | | 6-26-85 | .696 |
| | | | | | 7-24-85 | .776 |
| | | | | | 8-28-85 | .665 |
| | | | | | 9-25-85 | .534 |
| Unnamed mine drain | Georges Fork | Lat 37°09'50", long 82°29'13", Dickenson County, below mouth of abandoned mine, 200 ft upstream from Georges Fork off State Highway 621, and 1.1 mi north of Georges Fork. | - | - | 10-24-84 | .005 |
| | | | | | 11-14-84 | .003 |
| | | | | | 12-19-84 | .009 |
| | | | | | 1-29-85 | .011 |
| | | | | | 2-20-85 | .051 |
| | | | | | 3-27-85 | .017 |
| | | | | | 4- 9-85 | .017 |
| | | | | | 5-22-85 | .011 |
| | | | | | 6-26-85 | .007 |
| | | | | | 7-28-85 | .004 |
| | | | | | 8-28-85 | .009 |
| | | | | | 9-25-85 | .006 |
| Unnamed mine drain | Dotson Creek | Lat 37°00'35", long 82°33'27", Wise County, below mouth of abandoned mine, 50 ft upstream from Dotson Creek, and 3.1 mi northeast of Wise. | - | - | 10-24-84 | .030 |
| | | | | | 11-15-84 | .006 |
| | | | | | 12-18-84 | .030 |
| | | | | | 1-30-85 | .057 |
| | | | | | 2-22-85 | .117 |
| | | | | | 3-27-85 | .088 |
| | | | | | 4-10-85 | .097 |
| | | | | | 5-23-85 | .063 |
| | | | | | 6-27-85 | .033 |
| | | | | | 7-29-85 | .021 |
| | | | | | 8-29-85 | .038 |
| | | | | | 9-26-85 | .030 |
| Unnamed mine drain | Middle Fork | Lat 37°18'01", long 82°15'01", Buchanan County, below mouth of abandoned mine, 50 ft upstream from Middle Fork off State Highway 631, and 1.7 mi east of Breaks. | - | - | 10-23-84 | .015 |
| | | | | | 11-14-84 | .007 |
| | | | | | 12-19-84 | .008 |
| | | | | | 1-29-85 | .011 |
| | | | | | 2-20-85 | .082 |
| | | | | | 3-26-85 | .018 |
| | | | | | 4- 9-85 | .021 |
| | | | | | 5-22-85 | .011 |
| | | | | | 6-26-85 | .011 |
| | | | | | 7-23-85 | .009 |
| | | | | | 8-27-85 | .025 |
| | | | | | 9-24-85 | .021 |

Discharge measurements made at special study and miscellaneous sites during water year 1985--Continued

| Stream | Tributary to | Location | Drainage area ($mi^2$) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge ($ft^3/s$) |
| TENNESSEE RIVER BASIN | | | | | | |
| Unnamed mine drain | Laurel Branch | Lat 37°00'39", long 82°13'08", Russell County, below mouth of abandoned mine, 50 ft upstream from Laurel Branch, and 1.6 mi southwest of Carrie. | - | - | 10-24-84 | 0.022 |
| | | | | | 11-15-84 | .035 |
| | | | | | 12-19-84 | .062 |
| | | | | | 1-30-85 | .092 |
| | | | | | 2-21-85 | .117 |
| | | | | | 3-27-85 | .094 |
| | | | | | 4-10-85 | .122 |
| | | | | | 5-25-85 | .097 |
| | | | | | 6-24-85 | .042 |
| | | | | | 7-29-85 | .037 |
| | | | | | 8-29-85 | .019 |
| | | | | | 9-26-85 | .029 |
| Unnamed mine drain | Right Fork | Lat 36°58'59", long 82°15'55", Russell County, below mouth of abandoned mine, 400 ft upstream from Right Fork, and 2.0 mi east of Dante. | - | - | 10-24-84 | .149 |
| | | | | | 11-15-84 | .111 |
| | | | | | 12-19-84 | .095 |
| | | | | | 1-30-85 | .193 |
| | | | | | 2-21-85 | .696 |
| | | | | | 3-27-85 | .362 |
| | | | | | 4-10-85 | .352 |
| | | | | | 5-24-85 | .392 |
| | | | | | 6-24-85 | .212 |
| | | | | | 7-29-85 | .136 |
| | | | | | 8-29-85 | .237 |
| | | | | | 9-26-85 | .189 |
| Unnamed mine drain | Unnamed tributary to Sepulcher Creek | Lat 36°59'24", long 82°35'10", Wise County, below mouth of abandoned mine, 600 ft upstream from unnamed tributary to Sepulcher Creek, and 1.0 mi north of Wise. | - | - | 10-22-84 | .102 |
| | | | | | 11-15-84 | .082 |
| | | | | | 12-18-84 | .111 |
| | | | | | 1-31-85 | .117 |
| | | | | | 2-22-85 | .316 |
| | | | | | 3-28-85 | .175 |
| | | | | | 4-10-85 | .170 |
| | | | | | 5-23-85 | .060 |
| | | | | | 6-27-85 | .106 |
| | | | | | 7-29-85 | .097 |
| | | | | | 8-28-85 | .144 |
| | | | | | 9-25-85 | .104 |
| Unnamed mine drain | Mud Lick Creek | Lat 36°57'57", long 82°50'07", Wise County, below mouth of abandoned mine, 300 ft upstream from Mud Lick Creek, and at Roda. | - | - | 10-25-84 | .021 |
| | | | | | 11-13-84 | .018 |
| | | | | | 12-19-84 | .032 |
| | | | | | 1-31-85 | .015 |
| | | | | | 2-25-85 | .040 |
| | | | | | 3-28-85 | .026 |
| | | | | | 4-10-85 | .035 |
| | | | | | 5-24-85 | .022 |
| | | | | | 6-27-85 | .011 |
| | | | | | 7-30-85 | .090 |
| | | | | | 8-28-85 | .025 |
| | | | | | 9-26-85 | .017 |
| Unnamed mine drain | Looney Creek | Lat 36°54'58", long 82°49'21", Wise County, below mouth of abandoned mine, 200 ft upstream from Looney Creek, and 1.1 mi northwest of Inman. | - | - | 10-23-84 | 1.16 |
| | | | | | 11-13-84 | 1.92 |
| | | | | | 12-20-84 | 2.63 |
| | | | | | 1-31-85 | 2.89 |
| | | | | | 2-25-85 | 7.42 |
| | | | | | 3-29-85 | 3.66 |
| | | | | | 4-11-85 | 4.48 |
| | | | | | 5-24-85 | 3.01 |
| | | | | | 6-27-85 | 2.99 |
| | | | | | 7-30-85 | 1.61 |
| | | | | | 8-30-85 | 2.32 |
| | | | | | 9-26-85 | 1.65 |
| Unnamed mine drain | Baileys Trace | Lat 36°49'41", long 83°04'41", Lee County, below mouth of abandoned mine, 100 ft upstream from Baileys Trace, and 2.2 mi northwest of St. Charles. | - | - | 10-25-84 | .223 |
| | | | | | 11-14-84 | .307 |
| | | | | | 12-20-84 | .783 |
| | | | | | 2- 1-85 | .889 |
| | | | | | 2-26-85 | 2.88 |
| | | | | | 3-28-85 | 1.24 |
| | | | | | 4-11-85 | 1.82 |
| | | | | | 5-24-85 | .836 |
| | | | | | 6-28-85 | .408 |
| | | | | | 7-30-85 | .246 |
| | | | | | 8-30-85 | .430 |
| | | | | | 9-27-85 | .201 |

## ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

Samples are collected at partial-record, special study, and miscellaneous sites to give better areal coverage. The results of these samples are given herein.

### WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

### POTOMAC RIVER BASIN

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) |
|---|---|---|---|---|---|
| 01658530 SOUTH FORK QUANTICO CREEK AT MAWAVI ROAD NEAR JOPLIN, VA (LAT 38 35 07 LONG 077 24 46) | | | | | |
| OCT 1984 | | | | | |
| 23... | 12:00 | 1.5 | 57 | 19.0 | 14 |
| 29... | 15:00 | 12 | -- | -- | 23 |
| NOV | | | | | |
| 05... | 14:10 | 23 | -- | -- | 26 |
| 06... | 11:55 | 6.4 | -- | -- | 12 |
| 20... | 12:15 | 13 | -- | 5.0 | 13 |
| 27... | 13:25 | 3.8 | 48 | 5.0 | 3 |
| DEC | | | | | |
| 06... | 13:30 | 36 | -- | 5.0 | 40 |
| 17... | 13:25 | 5.7 | 46 | 10.5 | 6 |
| 22... | 12:00 | 5.4 | -- | 9.0 | 26 |
| JAN 1985 | | | | | |
| 04... | 13:18 | 23 | -- | 5.0 | 9 |
| 29... | 14:25 | 4.6 | 44 | 1.0 | 2 |
| FEB | | | | | |
| 02... | 10:55 | 64 | 46 | 0.5 | 279 |
| 12... | 11:30 | 294 | 46 | 2.0 | 545 |
| 13... | 14:10 | -- | 38 | 3.5 | 16 |
| 26... | 13:20 | 16 | 42 | 10.0 | 11 |
| MAR | | | | | |
| 27... | 12:55 | 8.3 | 45 | 10.0 | 4 |
| APR | | | | | |
| 24... | 12:35 | 3.4 | 52 | -- | -- |
| MAY | | | | | |
| 29... | 13:30 | 7.7 | 48 | 18.0 | -- |
| JUN | | | | | |
| 25... | 12:50 | 3.4 | 54 | 21.0 | -- |
| 01658602 SOUTH FORK QUANTICO CREEK TRIBUTARY 1 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 35 LONG 077 22 53) | | | | | |
| FEB 1985 | | | | | |
| 02... | 12:20 | 10 | 34 | 3.0 | 40 |
| 12... | 12:55 | 29 | 35 | 4.0 | 162 |
| 13... | 14:40 | 46 | 35 | 4.0 | 12 |
| MAR | | | | | |
| 27... | 11:20 | 1.5 | 33 | 10.0 | 1 |
| 01658603 SOUTH FORK QUANTICO CREEK BELOW TRIBUTARY 1 NEAR JOPLIN, VA (LAT 38 34 34 LONG 077 22 47) | | | | | |
| OCT 1984 | | | | | |
| 23... | 11:00 | 2.9 | 50 | 19.0 | 2 |
| 29... | 14:00 | 21 | -- | -- | 4 |
| NOV | | | | | |
| 05... | 13:15 | 46 | -- | -- | 30 |
| 06... | 13:05 | 13 | -- | -- | 18 |
| 20... | 13:45 | 20 | -- | 5.0 | 23 |
| 27... | 11:50 | 7.8 | 43 | 10.0 | 8 |
| DEC | | | | | |
| 06... | 14:20 | 50 | -- | 5.0 | 12 |
| 17... | 11:50 | 7.8 | 43 | 10.0 | 8 |
| 22... | 13:20 | 10 | -- | 9.0 | 18 |
| JAN 1985 | | | | | |
| 04... | 14:40 | 30 | -- | 5.5 | 4 |
| 29... | 12:55 | 7.1 | 42 | 1.0 | -- |
| FEB | | | | | |
| 02... | 14:05 | 203 | 46 | 1.0 | 98 |
| 12... | 15:00 | 431 | 40 | 2.0 | 393 |
| 13... | 13:35 | -- | 39 | 3.0 | 4 |
| 26... | 11:55 | 16 | 38 | 9.0 | 5 |
| MAR | | | | | |
| 27... | 10:25 | 13 | 45 | 7.5 | 6 |
| APR | | | | | |
| 24... | 11:10 | 5.3 | 46 | 18.0 | -- |
| MAY | | | | | |
| 29... | 11:55 | 14 | 48 | 19.0 | -- |
| JUN | | | | | |
| 25... | 11:30 | 6.4 | 45 | 21.0 | -- |

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

### POTOMAC RIVER BASIN--Continued

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) |
|---|---|---|---|---|---|
| 01658605 SOUTH FORK QUANTICO CREEK TRIBUTARY 2 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 31 LONG 077 22 31) | | | | | |
| FEB 1985 | | | | | |
| 02... | 15:00 | 2.7 | 41 | 4.0 | 14 |
| 12... | 15:40 | 7.5 | 38 | 4.5 | 50 |
| 13... | 13:15 | 1.5 | 40 | 5.5 | 1 |
| MAR | | | | | |
| 27... | 09:05 | 1.4 | 44 | 6.0 | -- |
| 01658608 SOUTH FORK QUANTICO CREEK TRIBUTARY 4 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 03 LONG 077 21 56) | | | | | |
| FEB 1985 | | | | | |
| 01... | 13:10 | 0.52 | 68 | 3.0 | 134 |
| 12... | 16:25 | 0.92 | 69 | 5.0 | 27 |
| 13... | 10:35 | 0.35 | 70 | 5.0 | 6 |
| MAR | | | | | |
| 26... | 11:30 | 0.15 | 77 | 10.0 | 16 |
| 01658610 SOUTH FORK QUANTICO CREEK AT PARK ROAD NEAR JOPLIN, VA (LAT 38 34 03 LONG 077 21 54) | | | | | |
| OCT 1984 | | | | | |
| 23... | 10:05 | 3.8 | 55 | 18.5 | 2 |
| 29... | 12:40 | 30 | -- | -- | 4 |
| 29... | 16:20 | 20 | -- | -- | 3 |
| NOV | | | | | |
| 05... | 11:45 | 57 | -- | -- | 23 |
| 05... | 15:21 | 40 | -- | -- | 19 |
| 06... | 14:00 | 13 | -- | -- | 13 |
| 19... | 16:30 | 51 | -- | -- | 22 |
| 27... | 10:10 | 6.1 | 46 | 7.0 | 2 |
| DEC | | | | | |
| 06... | 10:05 | 62 | -- | 5.0 | 34 |
| 17... | 10:35 | 8.9 | 44 | 10.0 | 7 |
| 22... | 14:30 | 11 | -- | 10.0 | 13 |
| JAN 1985 | | | | | |
| 04... | 16:00 | 32 | -- | 5.0 | 9 |
| 29... | 12:30 | 11 | 45 | 0.0 | -- |
| FEB | | | | | |
| 01... | 14:30 | 32 | 39 | 0.0 | 27 |
| 02... | 15:35 | -- | 47 | 1.0 | 107 |
| 12... | 17:00 | -- | 44 | 2.0 | 444 |
| 13... | 09:50 | -- | 42 | 2.0 | 69 |
| 26... | 10:40 | 15 | 41 | 9.0 | 3 |
| MAR | | | | | |
| 26... | 13:50 | 17 | 51 | 9.0 | 9 |
| APR | | | | | |
| 24... | 09:55 | 6.3 | 48 | 18.0 | -- |
| MAY | | | | | |
| 29... | 10:50 | 18 | 50 | 19.0 | -- |
| JUN | | | | | |
| 25... | 10:15 | 6.4 | 48 | 21.0 | -- |
| 01658612 SOUTH FORK QUANTICO CREEK TRIBUTARY 3 AT MOUTH NEAR JOPLIN, VA (LAT 38 34 02 LONG 077 21 52) | | | | | |
| FEB 1985 | | | | | |
| 01... | 12:35 | 0.87 | 43 | 3.0 | -- |
| MAR | | | | | |
| 26... | 12:15 | 0.27 | 53 | 10.5 | 15 |
| 01658618 MARY BIRD BRANCH AT MOUTH NEAR DUMFRIES, VA (LAT 38 34 04 LONG 077 21 39) | | | | | |
| FEB 1985 | | | | | |
| 01... | 15:35 | 4.1 | 37 | 1.0 | 61 |
| 13... | 12:15 | 3.1 | 40 | 4.0 | 5 |
| MAR | | | | | |
| 26... | 15:00 | 0.95 | 44 | 11.5 | 3 |

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

### POTOMAC RIVER BASIN--Continued

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) |
|---|---|---|---|---|---|
| 01658625 SOUTH FORK QUANTICO CREEK TRIBUTARY 5 NEAR DUMFRIES, VA (LAT 38 33 49 LONG 077 21 28) | | | | | |
| OCT 1984 | | | | | |
| 23... | 09:15 | 0.18 | 78 | 18.5 | 5 |
| NOV | | | | | |
| 06... | 15:05 | 0.16 | -- | -- | 2 |
| 19... | 12:30 | 0.68 | -- | -- | 14 |
| 27... | 08:45 | 0.1 | 75 | 4.0 | 3 |
| DEC | | | | | |
| 06... | 09:22 | 0.3 | -- | 2.0 | 11 |
| 17... | 09:10 | 0.2 | 70 | 10.0 | 11 |
| JAN 1985 | | | | | |
| 29... | 08:55 | 0.15 | 65 | 0.5 | 20 |
| FEB | | | | | |
| 01... | 11:40 | 1.2 | 64 | 0.0 | 101 |
| 12... | 16:45 | 1.9 | 55 | 5.0 | 54 |
| 13... | 09:15 | 0.92 | 66 | 3.5 | 9 |
| 13... | 11:00 | 0.68 | 55 | 5.0 | 9 |
| 26... | 09:25 | 0.41 | 67 | 8.0 | 4 |
| MAR | | | | | |
| 26... | 09:20 | 0.28 | 67 | 6.0 | 1 |
| APR | | | | | |
| 24... | 08:45 | 0.16 | 68 | 15.0 | -- |
| MAY | | | | | |
| 29... | 09:00 | 0.16 | 65 | -- | -- |
| JUN | | | | | |
| 25... | 08:55 | 0.08 | 63 | 18.0 | -- |
| 01658630 SOUTH FORK QUANTICO CREEK AT ORENDA ROAD NEAR DUMFRIES, VA (LAT 38 33 59 LONG 077 21 12) | | | | | |
| FEB 1985 | | | | | |
| 01... | 14:25 | 45 | -- | 0.0 | 49 |
| 13... | 14:08 | 61 | -- | 3.5 | 32 |
| 01658635 SOUTH FORK QUANTICO CREEK TRIBUTARY 6 AT MOUTH NEAR DUMFRIES, VA (LAT 38 34 00 LONG 077 21 11) | | | | | |
| MAR 1985 | | | | | |
| 26... | 10:45 | 0.22 | 65 | 8.0 | 2 |
| 01658653 QUANTICO CREEK TRIBUTARY 1 AT PRIVATE ROAD NEAR DUMFRIES, VA (LAT 38 34 48 LONG 077 20 37) | | | | | |
| FEB 1985 | | | | | |
| 01... | 13:00 | 8.1 | -- | 0.0 | 33 |
| 13... | 12:20 | 4.8 | -- | 5.0 | 6 |
| MAR | | | | | |
| 28... | 12:30 | 1.2 | -- | 14.0 | 2 |

## GROUND-WATER-QUALITY RECORDS

**REMARK CODES**.--The following remark codes may appear with the water-quality data in this section:

| PRINTED OUTPUT | REMARK |
|---|---|
| E | Estimated value |
| > | Actual value is known to be greater than the value shown. |
| < | Actual value is known to be less than the the value shown |
| K | Results based on colony count outside the acceptance range (non-ideal colony count) |
| L | Biological organism count less than 0.5 percent (organism may be observed rather than counted) |
| D | Biological organism count equal to or greater than 15 percent (dominant) |
| & | Biological organism estimated as dominant |

## ACCOMACK COUNTY

375622075280101. Local number, 67M2.
LOCATION.--Lat 37°56'23", long 75°28'02", Hydrologic Unit 02060010, Wallops Flight Center well B31. Owner: National Aeronautics and Space Administration (formerly U.S. Naval Air Station, Wallops Island).
AQUIFER.--Columbia Group sand of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 60 ft, screen depth unknown.
INSTRUMENTATION.--Monthly measurement with chalked tape by NASA personnel.
DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.38 ft above land-surface datum. Measuring point reported as 6.09 ft above land-surface datum from 1963 to 1975.
REMARKS.--Records provided by the National Aeronautics and Space Administration.
PERIOD OF RECORD.--May 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.82 ft below land-surface datum, May 9, 1963; lowest measured, 25.22 ft below land-surface datum, Dec. 1, 1981, Aug. 6, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 3 | 21.97 | DEC 3 | 23.47 | FEB 1 | 21.27 | APR 1 | 24.12 | JUN 3 | 23.37 | AUG 6 | 25.22 |
| OCT 31 | 22.62 | JAN 1 | 22.47 | MAR 1 | 22.62 | MAY 1 | 24.62 | JUL 5 | 24.52 | SEP 4 | 24.79 |

## ALBEMARLE COUNTY

380333078264801. Local number, 43N1.
LOCATION.--Lat 38°03'33", long 78°26'48", Hydrologic Unit 02080204, at Key West Subdivision, Charlottesville. Owner: Key West Development Corporation.
AQUIFER.--Lynchburg Formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 409 ft, cased to 52 ft, open hole 52 to 409 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 345 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 28. Manual measurements published from June 1974 to April 1981.
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.65 ft below land-surface datum, May 3, 1984; lowest recorded, 22.10 ft below land-surface datum, Nov. 30, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 15.27 | 15.70 | 15.90 | 15.70 | 15.20 | 14.89 | 14.95 | 15.71 | 16.90 | 18.01 | 17.31 | 17.09 |
| 10 | 15.31 | 15.80 | 15.70 | 15.70 | 15.23 | 14.93 | 15.12 | 15.74 | 16.68 | 18.23 | 17.28 | 17.01 |
| 15 | 15.29 | 15.82 | 15.76 | 15.70 | 14.32 | 14.98 | 15.11 | 15.86 | 16.50 | 18.00 | 17.40 | 17.23 |
| 20 | 15.40 | 15.80 | 15.70 | 15.61 | 15.00 | 15.00 | 15.35 | 16.00 | 17.68 | 17.69 | 17.09 | 17.40 |
| 25 | 15.70 | 15.90 | 15.79 | 15.61 | 14.94 | 14.89 | 15.58 | 16.61 | 17.65 | 17.49 | 17.02 | 17.63 |
| EOM | 15.73 | 15.90 | 15.93 | 15.70 | 15.00 | 14.90 | 15.63 | 17.20 | 17.66 | 17.40 | 17.20 | 17.57 |

WTR YR 1985 HIGHEST 14.26 FEB 14, 15, 1985 LOWEST 18.36 JUL 12, 1985

## APPOMATTOX COUNTY

372133078493701. Local number, 40G1.
LOCATION.--Lat 37°21'33", long 78°49'37", Hydrologic Unit 02080207, in the town of Appomattox. Owner: Town of Appomattox.
AQUIFER.--Metamorphic rock of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 288 ft, cased to 40 ft, open hole 40 to 288 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 860 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 12.
PERIOD OF RECORD.--October 1967 to current year. Unpublished record available in May 1949.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.78 ft below land-surface datum, June 13, 1973; lowest recorded, 58.21 ft below land-surface datum, Nov. 17, 18, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 46.80 | 46.50 | 47.34 | 47.60 | 48.70 | 48.92 | 49.07 | 49.37 | 49.50 | 49.90 | 50.07 | 49.92 |
| 10 | 46.87 | 46.90 | 47.26 | 47.80 | 48.73 | 48.90 | 49.11 | 49.40 | 49.51 | 49.92 | 50.19 | 49.87 |
| 15 | 46.69 | 47.10 | 47.60 | 47.97 | 48.79 | 49.11 | 48.98 | 49.37 | 49.69 | 49.92 | 50.29 | 50.00 |
| 20 | 46.70 | 47.21 | 47.52 | 47.81 | 48.88 | 49.00 | 49.28 | 49.49 | 49.80 | 50.10 | 50.22 | 49.90 |
| 25 | 46.80 | 46.90 | 47.26 | 48.12 | 48.80 | 49.14 | 49.33 | 49.40 | 49.71 | 50.23 | 50.00 | 49.87 |
| EOM | 46.80 | 47.02 | 47.32 | 48.50 | 48.90 | 49.10 | 49.42 | 49.39 | 49.90 | 50.09 | 49.92 | 49.70 |

WTR YR 1985 HIGHEST 45.90 NOV 5, 1984 LOWEST 50.33 AUG 17, 1985

## APPOMATTOX COUNTY--Continued

372514078394301. Local number, 41H2.
LOCATION.--Lat 37°25'14", long 78°39'43", Hydrologic Unit 02080207, 1 mi south of intersection of State Highway 636 on the east side of State Highway 640. Owner: U.S. Geological Survey.
AQUIFER.--Candler Formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 68 ft, 1.25 in. 68 to 73 ft, depth 73 ft, screened 68 to 73 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 640 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.99 ft below land-surface datum, May 20, 1973; lowest measured, 49.41 ft below land-surface datum, Mar. 30, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 25 | 41.25 | FEB 14 | 43.52 | MAY 1 | 44.29 | JUN 11 | 44.59 | AUG 12 | 46.57 | SEP 23 | 45.74 |
| JAN 8 | 42.93 | MAR 21 | 43.96 | | | | | | | | |

## ARLINGTON COUNTY

385346077073701. Local number, 53V1.
LOCATION.--Lat 38°53'46", long 77°07'37", Hydrologic Unit 02070010, at Langston School, 4854 Lee Highway, Arlington. Owner: Arlington County School Board.
AQUIFER.--Brandywine Formation of Pleistocene age and Bryn Mawr (?) gravel of Pliocene (?) age, overlying the Sykesville Formation of Precambrian age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in., depth 35 ft, terracotta casing.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 410 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Inner flange of manhole at land-surface datum.
PERIOD OF RECORD.--October 1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.74 ft below land-surface datum, Apr. 20, 1935; lowest measured, 34.81 ft below land-surface datum, Dec. 5, 1931.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 29 | 25.09 | JAN 29 | 26.00 | MAR 21 | 25.41 | APR 30 | 25.87 | JUN 25 | 25.85 | AUG 30 | 27.41 |

385253077042301. Local number, 54V3.
LOCATION.--Lat 38°52'53", long 77°04'23", Hydrologic Unit 02070010, at Arlington National Cemetery. Owner: NPS National Capitol Parks.
AQUIFER.--Terrace gravels of Holocene age and sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 48 in., depth 50 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 205 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of brick and stone casing, 3 ft above land-surface datum.
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.34 ft below land-surface datum, June 26, 1978; lowest measured, 44.90 ft below land-surface datum, Mar. 4, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 29 | 42.68 | JAN 29 | 43.49 | MAR 20 | 43.60 | APR 29 | 43.44 | JUN 25 | 43.65 | AUG 29 | 43.58 |
| NOV 29 | 43.05 | | | | | | | | | | |

## BUCKINGHAM COUNTY

372541078392101. Local number, 41H1.
LOCATION.--Lat 37°25'41", long 78°39'21", Hydrologic Unit 02080207, 0.45 mi southeast of State Highway 636. Owner: U.S. Geological Survey.
AQUIFER.--Candler Formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 83 ft, diameter 1.25 in. 83 to 88 ft, depth 88 ft, screened 83 to 88 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 660 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.20 ft above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.95 ft below land-surface datum, May 20, 1973; lowest measured, 50.41 ft below land-surface datum, Dec. 8, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 25 | 44.34 | FEB 14 | 46.57 | MAY 1 | 46.35 | JAN 11 | 46.42 | AUG 12 | 47.05 | SEP 23 | 47.19 |
| JAN 8 | 46.18 | MAR 21 | 46.58 | | | | | | | | |

372608078404601. Local number, 41H3.
LOCATION.--Lat 37°26'08", long 78°40'46", Hydrologic Unit 02080207, 0.85 mi west of Ranger Headquarters on south side of dirt road off State Highway 636. Owner: U.S. Geological Survey.
AQUIFER.--Candler Formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 49 ft, diameter 1.25 in. 49 to 54 ft, depth 54 ft, screened 49 to 54 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 683.8 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.3 ft above land-surface datum.
REMARKS.--Prior to Oct. 1, 1981, well was reported as being located in Appomattox County.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.31 ft below land-surface datum, Apr. 12, 1973; lowest measured, 28.30 ft below land-surface datum, Oct. 17, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 25 | 18.66 | FEB 14 | 19.12 | MAY 1 | 20.69 | JUN 11 | 21.26 | AUG 12 | 23.00 | SEP 23 | 21.62 |
| JAN 8 | 19.72 | MAR 21 | 19.32 | | | | | | | | |

372519078374001. Local number, 41H4.
LOCATION.--Lat 37°25'19", long 78°37'40", Hydrologic Unit 02080207, 0.65 mi northeast of Holiday Creek and 0.85 mi southeast of State Highway 636 on State Highway 614. Owner: U.S. Geological Survey.
AQUIFER.--Candler Formation of Plaeozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 72 ft, diameter 1.25 in. 72 to 77 ft, depth 77 ft, screened 72 to 77 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 647 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.45 ft below land-surface datum, May 1, 1980; lowest measured, 44.29 ft below land-surface datum, Oct. 20, 21, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 25 | 38.03 | FEB 14 | 37.75 | MAY 1 | 36.67 | JUN 11 | 36.20 | AUG 12 | 39.30 | SEP 23 | 39.92 |
| JAN 8 | 38.66 | MAR 21 | 37.02 | | | | | | | | |

## CITY OF COLONIAL HEIGHTS

371644077244601. Local number, 51G1.
LOCATION.--Lat 37°16'44", long 77°24'46", Hydrologic Unit 02080207, at Matoaka Manor, Colonial Heights. Owner: Dean Whittington.
AQUIFER.--Petersburg granite of Late Paleozoic age.
WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 100 ft, cased to 50 ft, open hole 50 to 100 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 57.30 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft above land-surface datum.
PERIOD OF RECORD.--October 1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.73 ft below land-surface datum, Jan. 26, 1978; lowest measured, 19.26 ft below land-surface datum, Dec. 3, 1963.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 31 | 17.29 | JAN 1 | 17.31 | MAR 18 | 15.62 | APR 26 | 16.09 | JUN 25 | 16.63 | AUG 30 | 17.00 |
| NOV 28 | 17.65 | FEB 27 | 15.48 | 27 | 15.77 | MAY 28 | 16.32 | JUL 29 | 17.10 | SEP 25 | 17.44 |
| DEC 27 | 17.89 | | | | | | | | | | |

## FAIRFAX COUNTY

384518077163501. Local number, 52U4.
LOCATION.--Lat 38°45'18", long 77°16'35", Hydrologic Unit 02070010, east of intersection of State Highways 641 and 643, Springfield. Owner: Sydenstricker Church.
AQUIFER.--Granite of undetermined age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in., depth 28 ft.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 340 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Hole in cement platform, 0.67 ft above land-surface datum.
PERIOD OF RECORD.--May 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.54 ft below land-surface datum, Apr. 30, 1973; lowest measured, 27.57 ft below land-surface datum, Nov. 30, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 29 | 19.93 | JAN 30 | 18.17 | MAR 20 | 17.84 | APR 30 | 17.38 | JUN 27 | 18.54 | AUG 29 | 21.74 |
| NOV 29 | 20.23 | FEB 28 | 18.41 | 26 | 17.87 | MAY 29 | 17.71 | JUL 30 | 20.66 | SEP 26 | 22.84 |
| DEC 26 | 19.71 | | | | | | | | | | |

385638077220101. Local number, 52V2.
LOCATION.--Lat 38°56'58", long 77°22'01", Hydrologic Unit 02070008, at U.S. Geological Survey, National Center, Reston. Owner: U.S. Geological Survey.
AQUIFER.--Manassas sandstone of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in., depth 205 ft, cased to 35 ft, open hole 35 to 205 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 390 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
PERIOD OF RECORD.--October 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.47 ft below land-surface datum, Mar. 30, 1984; lowest recorded, 17.30 ft below land-surface datum, Oct. 24, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 15.36 | 15.44 | 14.91 | --- | 13.36 | 12.17 | 11.41 | 12.63 | 13.45 | --- | 16.26 | 17.04 |
| 10 | 15.45 | 15.41 | 14.51 | 14.23 | 13.20 | 12.38 | 11.84 | 12.06 | 13.60 | 14.96 | 16.42 | 17.17 |
| 15 | 15.53 | 15.48 | 14.66 | --- | 11.75 | 12.35 | 11.89 | 13.06 | 13.90 | 15.27 | 16.68 | 17.13 |
| 20 | 15.64 | 15.41 | 14.62 | --- | --- | 12.54 | 12.13 | 13.13 | 14.06 | 15.54 | 16.68 | --- |
| 25 | 15.66 | 15.36 | 14.68 | --- | --- | 12.39 | 12.31 | 12.96 | 14.26 | --- | 16.83 | --- |
| EOM | 15.51 | 15.03 | --- | 14.35 | --- | 11.33 | 12.56 | 13.25 | --- | --- | 16.94 | 17.24 |

WTR YR 1985 HIGHEST 11.16 MAR 30, 1985 LOWEST 17.24 SEP 30, 1985

## CITY OF FRANKLIN

**364047076552401. Local number, 55B22.**

**LOCATION.**--Lat 36°40'47", long 76°55'24", Hydrologic Unit 03010202, at 5th Avenue and Middle Street, Franklin. Owner: City of Franklin.

**AQUIFER.**--Sand of undifferentiated Cretaceous age.

**WELL CHARACTERISTICS.**--Jetted observation water well, diameter 4 in., depth 354 ft, screened 335 to 354 ft.

**INSTRUMENTATION.**--Bimonthly measurement with chalked tape by USGS personnel.

**DATUM.**--Elevation of land-surface datum is 21.24 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of manhole at land-surface datum.

**REMARKS.**--Water level affected by local pumpage.

**PERIOD OF RECORD.**--June 1942 to current year.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level measured, 14.50 ft below land-surface datum, June 25, 1942; lowest measured, 192.69 ft below land-surface datum, Aug. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 2 | 179.36 | FEB 4 | 176.39 | MAY 6 | 183.37 | JUN 19 | 189.68 | AUG 2 | 192.69 | SEP 17 | 192.00 |
| DEC 3 | 177.29 | MAR 19 | 177.66 | | | | | | | | |

**364033076562603. Local number, 55B66.**

**LOCATION.**--Lat 36°40'33", long 76°56'26", Hydrologic Unit 03010202, at P. D. Camp Community College, Franklin. Owner: U.S. Geological Survey.

**AQUIFER.**--Sands of lower Cretaceous age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4 in., depth 360 ft, screened 350 to 360 ft.

**INSTRUMENTATION.**--Bimonthly measurement with chalked tape by USGS personnel.

**DATUM.**--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.58 ft above land-surface datum.

**REMARKS.**--Water level affected by local pumpage.

**PERIOD OF RECORD.**--November 1984 to September 1985.

**EXTREMES FOR PERIOD NOVEMBER 1984 TO SEPTEMBER 1985.**--Highest water level measured, 175.39 ft below land-surface datum, Dec. 27, 1984; lowest measured, 185.52 ft below land-surface datum, Aug. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, NOVEMBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1 | 180.40 | MAR 19 | 179.01 | MAY 6 | 182.23 | JUN 19 | 184.12 | AUG 2 | 185.52 | SEP 16 | 184.73 |
| DEC 27 | 175.39 | | | | | | | | | | |

**364033076562604. Local number, 55B67.**

**LOCATION.**--Lat 36°40'33", long 76°56'26", Hydrologic Unit 03010202, at P. D. Camp Community College, Franklin. Owner: U.S. Geological Survey.

**AQUIFER.**--Sands of Paleocene age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4 in., depth 140 ft, screened 130 to 140 ft.

**INSTRUMENTATION.**--Bimonthly measurement with chalked tape by USGS personnel.

**DATUM.**--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.15 ft above land-surface datum.

**REMARKS.**--Water level affected by local pumpage.

**PERIOD OF RECORD.**--November 1984 to September 1985.

**EXTREMES FOR PERIOD NOVEMBER 1984 TO SEPTEMBER 1985.**--Highest water level measured, 29.51 ft below land-surface datum, Mar. 19, 1985; lowest measured, 30.81 ft below land-surface datum, Sept. 16, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, NOVEMBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 1 | 29.74 | MAR 19 | 29.51 | MAY 6 | 29.65 | JUN 19 | 30.13 | AUG 2 | 30.45 | SEP 16 | 30.81 |
| DEC 27 | 29.59 | | | | | | | | | | |

## HALIFAX COUNTY

364550078562301. Local number, 39C1.
LOCATION.--Lat 36°45'50", long 78°56'23", Hydrologic Unit 03010105, in the town of Halifax. Owner: Town of Halifax.
AQUIFER.--Granite and gneiss of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 302 ft, cased to 52 ft, open hole 52 to 302 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 380 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.20 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 11.
PERIOD OF RECORD.--October 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.28 ft below land-surface datum, June 8, 1980; lowest recorded, 45.09 ft below land-surface datum, Dec. 30, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | --- | 37.00 | 37.39 | --- | 37.64 | 38.03 | --- | 38.19 | 38.40 | 38.62 | 38.96 | 39.08 |
| 10 | --- | --- | --- | --- | 37.63 | --- | 38.18 | 38.18 | 38.40 | 38.70 | 38.95 | 39.08 |
| 15 | --- | --- | --- | --- | --- | --- | 38.01 | --- | 38.49 | 38.71 | 39.00 | 39.17 |
| 20 | --- | --- | --- | 37.63 | --- | --- | 38.10 | --- | 38.55 | 38.80 | 39.07 | 39.15 |
| 25 | 37.00 | --- | --- | 37.63 | 37.90 | --- | 38.13 | 38.28 | 38.57 | 38.86 | 39.06 | 39.20 |
| EOM | 36.99 | --- | --- | 37.64 | 38.03 | --- | 38.20 | 38.31 | 38.60 | 38.90 | 39.07 | 39.21 |

WTR YR 1985 HIGHEST 36.90 OCT 28, 1984 LOWEST 39.29 SEP 28, 1985

## CITY OF HOPEWELL

371801077164201. Local number, 52G1.
LOCATION.--Lat 37°18'01", long 77°16'42", Hydrologic Unit 02080206, in the city of Hopewell. Owner: Virginia American Water Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 300 ft, screen depth unknown.
INSTRUMENTATION.--Weekly measurement with chalked tape by observer.
DATUM.--Elevation of land-surface datum is 50.26 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.34 ft above land-surface datum.
PERIOD OF RECORD.--May 1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.56 ft below land-surface datum, Sept. 7, 1979; lowest measured, 56.95 ft below land-surface datum, Aug. 14, 1943.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 5 | 34.66 | DEC 7 | 34.40 | FEB 8 | 32.60 | APR 12 | 35.05 | JUN 14 | 35.09 | AUG 16 | 35.12 |
| 12 | 37.70 | 14 | 34.68 | 15 | 34.90 | 19 | 35.15 | 21 | 35.23 | 23 | 29.93 |
| 19 | 34.70 | 21 | 34.80 | 22 | 35.05 | 26 | 35.04 | 28 | 35.29 | 30 | 33.79 |
| 26 | 34.69 | 28 | 35.07 | MAR 1 | 35.15 | MAY 3 | 35.07 | JUL 5 | 35.10 | SEP 6 | 34.99 |
| NOV 2 | 34.45 | JAN 4 | 32.67 | 8 | 35.21 | 10 | 35.15 | 12 | 35.18 | 13 | 35.14 |
| 9 | 34.82 | 11 | 34.32 | 15 | 35.01 | 17 | 35.16 | 19 | 35.24 | 20 | 35.24 |
| 16 | 34.55 | 18 | 34.66 | 22 | 35.10 | 24 | 35.14 | 26 | 33.10 | 27 | 31.85 |
| 23 | 32.61 | 25 | 34.88 | 29 | 34.97 | 31 | 35.13 | AUG 2 | 34.58 | | |
| 30 | 33.51 | FEB 1 | 28.87 | APR 5 | 34.92 | JUN 7 | 35.12 | 9 | 35.04 | | |

## ISLE OF WIGHT COUNTY

364059076544901. Local number, 55B16.

LOCATION.--Lat 36°40'59", long 76°54'49", Hydrologic Unit 03010202, at lumberyard well, near Franklin. Owner: Union Camp Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous aquifer.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 305 ft, screened 285 to 305 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.45 ft above land-surface datum. Measuring point changed from top edge of recorder shelf, 3.50 ft above land-surface datum, Nov. 28, 1979.

REMARKS.--Water level affected by local pumpage.

PERIOD OF RECORD.--June 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 99.00 ft below land-surface datum, Dec. 27, 1960; lowest recorded, 197.77 ft below land-surface datum, Sept. 22, 23, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 186.61 | 186.09 | 184.47 | 180.47 | 182.93 | 183.30 | 183.00 | e191.50 | 193.39 | 195.83 | 195.84 | 187.63 |
| 10 | 187.22 | 185.82 | 184.44 | 181.40 | 183.56 | 184.59 | 187.55 | 191.82 | 195.40 | 195.89 | 196.39 | 193.54 |
| 15 | 186.73 | 185.53 | 184.54 | 181.69 | 182.59 | 183.72 | 188.55 | 192.73 | 195.75 | 196.11 | 196.64 | 194.91 |
| 20 | 186.18 | 185.31 | 184.69 | 181.88 | 183.09 | 184.55 | 189.13 | 193.01 | 195.77 | 196.15 | 196.67 | 197.35 |
| 25 | 187.14 | 165.28 | 182.57 | 182.86 | 183.28 | 183.45 | 190.49 | 193.39 | 196.32 | 196.53 | 196.56 | 197.34 |
| EOM | 186.26 | 184.62 | 179.53 | 182.61 | 183.26 | 183.32 | 191.83 | 192.89 | 196.47 | 196.13 | 195.56 | 194.20 |

e Estimated.

WTR YR 1985 HIGHEST 177.52 DEC 28, 29, 1984 LOWEST 197.77 SEP 22, 23, 1985

364116076545001. Local number, 55B35.

LOCATION.--Lat 36°41'16", long 76°54'50", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 623 ft, screened 430 to 435 ft, 475 to 480 ft, 580 to 585 ft, 618 to 623 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 32 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.15 ft above land-surface datum. Measuring point changed from top of casing, 2 ft above land-surface datum, Oct. 26, 1979.

REMARKS.--Water level affected by local pumpage. Recorder removed Nov. 14, 1971; manual measurements thereafter. Recorder reinstalled Oct. 12, 1982.

PERIOD OF RECORD.--February 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.99 ft below land-surface datum, Aug. 23, 1974; lowest measured, 217.08 ft below land-surface datum, Sept. 22, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | --- | 205.58 | 203.49 | 199.90 | 202.83 | --- | 202.89 | 210.50 | 213.07 | 215.34 | 214.43 | 207.33 |
| 10 | --- | 205.03 | 203.74 | 199.99 | 202.97 | 203.93 | 206.78 | 211.56 | 215.28 | 215.28 | 216.20 | 213.03 |
| 15 | --- | 204.85 | 203.94 | --- | 201.35 | 203.77 | 208.22 | 212.41 | 215.07 | 215.68 | 216.30 | 214.87 |
| 20 | 205.89 | 204.84 | 204.27 | --- | --- | 203.73 | 208.10 | 212.76 | 215.71 | 215.87 | 216.28 | 216.88 |
| 25 | --- | 204.56 | 199.91 | --- | --- | 202.63 | 210.16 | 212.67 | 215.98 | 216.10 | 215.55 | 216.54 |
| EOM | 205.78 | 203.64 | 198.75 | --- | --- | 202.32 | 211.37 | 212.43 | 215.79 | 215.88 | 213.21 | 213.67 |

WTR YR 1985 HIGHEST 194.71 DEC 28, 1984 LOWEST 217.08 SEP 22, 1985

## ISLE OF WIGHT COUNTY--Continued

364125076544801. Local number, 55B36.
LOCATION.--Lat 36°41'25", long 76°54'48", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 860 ft, screened 720 to 725 ft, 800 to 805 ft, 855 to 860 ft.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 37 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 4.56 ft above land-surface datum. Measuring point changed from 4.25 ft above land-surface datum, Oct. 25, 1979; published incorrectly as 4.25 ft in 1980 and 1981.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--March 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 156.65 ft below land-surface datum, Dec. 27, 1969; lowest measured, 219.29 ft below land-surface datum, May 18, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 188.92 | 189.04 | 188.57 | --- | --- | --- | 187.41 | 186.97 | 187.49 | 188.21 | 188.24 | 187.75 |
| 10 | 188.93 | 189.03 | 188.40 | --- | --- | 186.80 | 187.21 | 186.99 | 187.65 | 188.22 | 188.18 | 186.24 |
| 15 | 188.95 | 189.01 | 188.28 | --- | --- | 187.01 | 187.14 | 187.00 | 187.93 | 188.22 | 188.18 | 185.78 |
| 20 | 188.96 | 188.96 | 188.26 | --- | --- | 187.20 | 187.04 | 187.12 | 188.01 | 188.22 | 188.22 | 185.53 |
| 25 | 188.98 | 188.88 | 188.23 | --- | --- | 187.28 | 186.94 | 187.27 | 188.08 | 188.22 | 188.24 | 185.52 |
| EOM | 189.05 | 188.71 | 186.70 | --- | --- | 187.42 | 186.96 | 187.37 | 188.12 | 188.23 | 188.26 | 185.55 |

WTR YR 1985 HIGHEST 185.30 FEB 4, 1985 LOWEST 189.05 OCT 27-31, NOV 1, 2, 1984

364425076532701. Local number, 55B45.
LOCATION.--Lat 36°44'25", long 76°53'27", Hydrologic Unit 03010202, near Maynards Crossroads. Owner: R. J. Goodrich.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 348 ft, screened 338 to 348 ft.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 37 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum. Measuring point changed from top edge of recorder shelf, 2.20 ft above land-surface datum, Apr. 13, 1981.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 33. Recorder removed Sept. 30, 1980; manual measurements thereafter.
PERIOD OF RECORD.--December 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 130.06 ft below land-surface datum, Aug. 15, 1974; lowest measured, 167.00 ft below land-surface datum, Aug. 12, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 26 | 156.18 | JUN 12 | 157.58 | JUL 17 | 157.31 | AUG 19 | 158.67 | | | | |

## JAMES CITY COUNTY

371311076463601. Local number, 56F1.
LOCATION.--Lat 37°13'11", long 76°46'36", Hydrologic Unit 02080206, Colonial Parkway near Jamestown. Owner: U.S. Department of Interior. Colonial National Historical Park.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 346 ft, screened 336 to 346 ft.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.15 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 18. Recorder removed Sept. 30, 1980; manual measurements thereafter.
PERIOD OF RECORD.--May 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 43.29 ft below land-surface datum, May 8, 1969; lowest measured, 78.78 ft below land-surface datum, Sept. 30, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 28 | 76.35 | MAR 26 | 73.53 | JUN 13 | 76.25 | JUL 9 | 77.22 | AUG 20 | 77.44 | SEP 30 | 78.78 |

## KING AND QUEEN COUNTY

373126076454101. Local number, 56J11.

LOCATION.--Lat 37°31'26", long 76°45'41", Hydrologic Unit 02080105, at West Point Airport. Owner: Chesapeake Corporation.

AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 1,254 ft, screened 1,233 to 1,248 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS and Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 73 through the 1979 water year; by U.S. Geological Survey thereafter. Recorder removed June 3, 1975; manual measurements thereafter.

PERIOD OF RECORD.--October 1974 to current year. Unpublished records available in March 1962 and June 1972.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 73.08 ft below land-surface datum, Apr. 25, 1975; lowest measured, 89.77 ft below land-surface datum, Sept. 23, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 3 | 84.65 | DEC 13 | 87.82 | MAR 27 | 88.05 | JUN 4 | 88.73 | AUG 20 | 89.08 | SEP 23 | 89.77 |
| 31 | 88.16 | MAR 18 | 88.10 | MAY 10 | 88.60 | JUL 11 | 88.22 | 22 | 89.24 | 30 | 89.75 |

373008076425601. Local number, 57J3.

LOCATION.--Lat 37°30'08", long 76°42'56", Hydrologic Unit 02080107, Gressitt observation well, near West Point. Owner: Chesapeake Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to 200 ft, diameter 4 in. from 200 to 760 ft, depth 760 ft, screened 741 to 756 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS and Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 51 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.20 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 74 through the 1979 water year; by U.S. Geological Survey thereafter. Recorder removed June 10, 1976; manual measurements thereafter.

PERIOD OF RECORD.--November 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 109.90 ft below land-surface datum, Jan. 26, 1975; lowest measured, 126.25 ft below land-surface datum, Sept. 30, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 13 | 123.38 | MAR 18 | 123.62 | JUL 9 | 1[illegible]5.30 | AUG 20 | 125.66 | AUG 22 | 125.58 | SEP 30 | 126.25 |
| FEB 15 | 123.19 | MAY 10 | 124.16 | 11 | 125.17 | | | | | | |

## KING WILLIAM COUNTY

373226076481201. Local number, 56J2.

LOCATION.--Lat 37°32'26", long 76°48'12", Hydrologic Unit 02080106, in West Point, 0.1 mi west of State Highway 30. Owner: Chesapeake Corporation.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled withdrawal well, diameter 18 in. to 300 ft, diameter 8 in. from 300 to 600 ft, depth 600 ft, screened 390 to 400 ft, 550 to 570 ft, 580 to 600 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

REMARKS.--This well replaces previously published 56J1 which was discontinued April 1982.

PERIOD OF RECORD.--November 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.48 ft below land-surface datum, Feb. 15, 1983; lowest measured, 162.05 ft below land-surface datum, June 7, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 4 | 144.99 | JAN 31 | 145.45 | MAR 18 | 157.77 | JUN 7 | 162.05 | JUL 10 | 161.34 | | |

## KING WILLIAM COUNTY--Continued

373206076481201. Local number, 56J18.

LOCATION.--Lat 37°32'06", long 76°48'12", Hydrologic Unit 02080106, near State Route 33 at Chesapeake Corporation, northeast corner of 13th and A Streets in brick pump house. Owner: Chesapeake Corporation of Virginia.

AQUIFER.--Sand and clay of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused well, diameter 18 in. to 180 ft, diameter 8 in. from 165 to 446 ft, depth 446 ft, screened 210 to 240 ft, 380 to 390 ft, 405 to 445 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.45 ft above land-surface datum. Measuring point changed from 1.22 ft above land-surface datum, Oct. 3, 1983.

REMARKS.--Water levels affected by local pumpage.

PERIOD OF RECORD.--March 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 111.86 ft below land-surface datum, Dec. 29, 1978; lowest measured, 173.08 ft below land-surface datum, Feb. 23, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 4 | 154.67 | JAN 31 | 153.69 | MAR 18 | 153.56 | JUN 7 | 160.60 | JUL 10 | 164.78 | | |

## LOUDOUN COUNTY

391542077423801. Local number, 49Y1.

LOCATION.--Lat 39°15'42", long 77°42'38", Hydrologic Unit 02070008, near Harpers Ferry. Owner: American Telephone and Telegraph Company.

AQUIFER.--Bedrock of Precambrian or Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6.5 in. Prior to 1974, diameter reported as 8 in. Depth 516 ft, cased to 45 ft, open hole 45 to 516 ft.

INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.

DATUM.--Elevation of land-surface datum is 1,100 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to 1974, elevation reported as 940 ft above mean sea level. Measuring point: Top of casing, 1 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 22. Recorder removed July 26, 1974; manual measurements thereafter.

PERIOD OF RECORD.--August 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 48.00 ft below land-surface datum, June 22, 1972; lowest measured, 61.70 ft below land-surface datum, Sept. 27, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 15 | 60.20 | JAN 16 | 59.26 | APR 10 | 56.92 | JUL 9 | 59.89 | AUG 21 | 60.16 | SEP 30 | 60.41 |
| DEC 4 | 58.48 | FEB 26 | 57.35 | MAY 22 | 59.28 | | | | | | |

390623077314201. Local number, 50W4C.

LOCATION.--Lat 39°06'23", long 77°31'42", Hydrologic Unit 02070008, east of Highway 7 on east side of town of Leesburg, under water tower. Owner: Town of Leesburg.

AQUIFER.--Slightly metamorphosed Balls Bluff Formation of Triassic age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 535 ft, cased to 6 ft, open hole 6 to 535 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum. Measuring point was land-surface datum for the following dates: Oct. 8, 1981, Nov. 18, 1981, and Mar. 23, 1982.

PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.69 ft below land-surface datum, Apr. 30, 1984; lowest measured, 48.97 ft below land-surface datum, Feb. 19, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 30 | 46.23 | JAN 30 | 46.53 | MAR 21 | 44.39 | MAY 30 | 42.83 | JUL 31 | 44.35 | SEP 27 | 47.43 |

## LOUISA COUNTY

380217078133701. Local number, 45N1.
**LOCATION.**--Lat 38°02'17", long 78°13'43", Hydrologic Unit 02080106, near Thelma, 3 mi southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.
**AQUIFER.**--Wissahickon Formation of Late Precambrian (?) age.
**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 6 in., depth 56 ft, length of casing unknown.
**INSTRUMENTATION.**--Continuous strip-chart recorder.
**DATUM.**--Elevation of land-surface datum is 500 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.95 ft above land-surface datum. Measuring point changed from top edge of recorder shelf, 3.10 ft above land-surface datum, Mar. 14, 1973.
**REMARKS.**--Records provided by the Virginia Water Control Board.
**PERIOD OF RECORD.**--July 1952 to current year.
**EXTREMES FOR PERIOD OF RECORD.**--Highest water level recorded, 11.97 ft below land-surface datum, Apr. 30, 1973; lowest measured, 35.17 ft below land-surface datum, Dec. 2, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 23.63 | 24.90 | 25.93 | 25.98 | 24.63 | 22.44 | 22.93 | 24.21 | 25.03 | 25.40 | 23.89 | 21.80 |
| 10 | 23.83 | 25.08 | 25.81 | 25.86 | 24.15 | 22.39 | 23.31 | 24.41 | 24.69 | 25.69 | --- | 21.61 |
| 15 | 24.03 | 25.40 | 25.82 | 25.40 | 23.41 | 22.52 | 23.26 | 24.65 | 24.60 | 24.58 | 24.39 | 21.83 |
| 20 | 24.30 | 25.69 | 25.75 | 25.10 | 22.95 | 22.61 | 23.48 | 24.88 | 24.68 | 24.02 | 23.78 | 22.00 |
| 25 | 24.63 | 25.71 | 26.01 | 24.92 | 22.60 | 22.81 | 23.68 | 24.90 | 24.87 | 23.72 | 22.90 | 22.36 |
| EOM | 24.88 | 25.76 | 26.04 | 25.10 | 22.56 | 22.83 | 24.02 | 24.97 | 25.19 | 23.68 | 22.00 | 22.70 |

WTR YR 1985 HIGHEST 21.58 SEP 10, 1985 LOWEST 26.06 JAN 3, 1985

380043078111301. Local number, 45N4.
**LOCATION.**--Lat 38°00'45", long 78°11'14", Hydrologic Unit 02080106, near Thelma, 4 mi southeast of Boswells Tavern, east of U.S. Highway 15. Owner: Virginia Department of Correction.
**AQUIFER.**--Metamorphosed sedimentary and volcanic rocks of unknown age.
**WELL CHARACTERISTICS.**--Drilled unused water well, diameter 6 in., depth 200 ft, cased to 42 ft, open hole 42 to 200 ft.
**INSTRUMENTATION.**--Monthly measurement with chalked tape by USGS personnel.
**DATUM.**--Elevation of land-surface datum is 415 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.30 ft above land-surface datum.
**PERIOD OF RECORD.**--February 1977 to current year.
**EXTREMES FOR PERIOD OF RECORD.**--Highest water level measured, 9.40 ft below land-surface datum, Apr. 28, 1980; lowest measured, 14.43 ft below land-surface datum, Aug. 26, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 29 | 12.53 | DEC 21 | 11.96 | FEB 27 | 11.14 | APR 26 | 11.90 | JUN 26 | 12.07 | SEP 27 | 12.48 |
| NOV 28 | 12.34 | JAN 29 | 11.85 | MAR 27 | 11.37 | MAY 29 | 11.48 | JUL 29 | 12.32 | | |

380231078132801. Local number, 45N5.
**LOCATION.**--Lat 38°02'31", long 78°13'28", Hydrologic Unit 02080106, near Thelma, 3 mi southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.
**AQUIFER.**--Metamorphosed sedimentary and volcanic rocks of unknown age.
**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 6 in., depth 14.15 ft, length of casing unknown.
**INSTRUMENTATION.**--Monthly measurements with chalked tape by USGS personnel.
**DATUM.**--Elevation of land-surface datum is 440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.35 ft above land-surface datum.
**PERIOD OF RECORD.**--February 1977 to July 1985, discontinued.
**EXTREMES FOR PERIOD OF RECORD.**--Highest water level measured, 0.04 ft below land-surface datum, Mar. 28, 1984; lowest measured, 6.81 ft below land-surface datum, July 31, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 29 | 0.72 | DEC 21 | 1.44 | FEB 27 | 0.97 | APR 26 | 1.36 | JUN 26 | 2.85 | JUL 29 | 2.09 |
| NOV 28 | 1.70 | JAN 29 | 1.87 | MAR 27 | .62 | MAY 29 | .69 | | | | |

## LOUISA COUNTY--Continued

380236078132301. Local number, 45N6.
LOCATION.--Lat 38°02'36", long 78°13'23", Hydrologic Unit 02080106, near Thelma, 3 mi southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 11.75 ft, length of casing unknown.
INSTRUMENTATION.--Monthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 440 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.20 ft above land-surface datum.
PERIOD OF RECORD.--February 1977 to July 1985, discontinued.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.06 ft below land-surface datum, July 31, 1978; lowest measured, 9.85 ft below land-surface datum, Sept. 28, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 29 | 6.59 | DEC 21 | 6.19 | FEB 27 | 4.90 | APR 26 | 6.50 | JUN 26 | 7.24 | JUL 29 | 6.37 |
| NOV 28 | 6.56 | JAN 29 | 6.16 | MAR 27 | 5.62 | MAY 29 | 7.54 | | | | |

380131078001001. Local number, 46N1.
LOCATION.--Lat 38°01'31", long 78°00'10", Hydrologic Unit 02080106, in the town of Louisa. Owner: Town of Louisa.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 132 ft, length of casing unknown.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 455 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 56. Recorder removed Apr. 30, 1979; manual measurements thereafter.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.27 ft below land-surface datum, May 18, 1973; lowest measured, 34.78 ft below land-surface datum, Dec. 8, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 25 | 30.95 | JUN 16 | 31.55 | JUL 12 | 31.79 | AUG 23 | 31.93 | | | | |

## MONTGOMERY COUNTY

370812080261901. Local number, 27F2.
LOCATION.--Lat 37°08'12", long 80°26'19", Hydrologic Unit 05050001, in the town of Christiansburg. Owner: Town of Christiansburg.
AQUIFER.--Beekmantown Formation of Early Ordovician age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 450 ft, length of casing unknown.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 1,970 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.50 ft below land-surface datum. Prior to 1985, casing was published as being 1.6 ft below land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 19. Lowest recorded water level, 7.39 ft, result of Sept. 19, 1985 earthquake in Mexico.
PERIOD OF RECORD.--May 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.50 ft below land-surface datum, Apr. 10-16, 23-25, 1983, and Apr. 10-17, 1984, water flowing over top of casing; lowest recorded, 7.39 ft below land-surface datum, Sept. 19, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 5.14 | 5.00 | 5.23 | 4.13 | 3.90 | 4.27 | --- | 5.40 | 5.30 | 5.62 | 5.85 | 5.31 |
| 10 | 5.27 | 5.26 | 5.12 | 4.50 | 4.30 | 4.34 | 4.90 | 5.48 | 5.22 | 5.73 | 5.96 | 5.55 |
| 15 | 5.23 | 5.32 | 5.32 | 4.91 | 4.30 | 4.64 | 4.93 | 5.57 | 5.47 | 5.85 | 6.21 | 5.78 |
| 20 | 5.40 | 5.35 | 5.36 | 5.18 | 3.82 | --- | 5.06 | 5.41 | 5.47 | 5.82 | 5.10 | 5.78 |
| 25 | 5.00 | 5.41 | 5.33 | 5.26 | 3.89 | --- | 4.88 | 4.33 | 5.63 | 5.98 | 5.28 | 5.90 |
| EOM | 5.11 | 4.87 | 5.27 | 5.31 | 3.77 | --- | 5.28 | 5.07 | 5.88 | 5.77 | 5.00 | 6.08 |

WTR YR 1985 HIGHEST 3.50 FEB 26, 1985 LOWEST 7.39 SEP 19, 1985

## NELSON COUNTY

374224078555601. Local number, 39K1.
LOCATION.--Lat 37°42'24", long 78°55'56", Hydrologic Unit 02080203, near Colleen. Owner: P. D. Payne.
AQUIFER.--Lovingston (or Marshall?) Formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 275 ft, length of casing unknown.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 770 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 6. Recorder removed June 26, 1974; manual measurements thereafter.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 27.08 ft below land-surface datum, June 29, 1973; lowest recorded, 35.66 ft below land-surface datum, Mar. 7, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 23 | 30.21 | JAN 15 | 30.42 | APR 15 | 30.38 | MAY 24 | 30.74 | JUL 11 | 31.16 | AUG 26 | 31.73 |
| DEC 5 | 30.44 | FEB 28 | 30.15 | | | | | | | | |

## NEW KENT COUNTY

372428076561501. Local number, 55H1.
LOCATION.--Lat 37°24'28", long 76°56'15", Hydrologic Unit 02080206, Walkers Dam, near Walkers. Owner: City of Newport News.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to 145 ft, diameter 4 in. from 145 to 630 ft, depth 630 ft, screen (slotted casing) 252 to 257 ft, 339 to 344 ft, 439 to 444 ft, 615 to 625 ft.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 17. Recorder removed Apr. 5, 1979; manual measurements thereafter.
PERIOD OF RECORD.--March 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 30.24 ft below land-surface datum, Apr. 10, 1969; lowest measured, 57.43 ft below land-surface datum, Aug. 30, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL 9 | 55.62 | AUG 20 | 55.68 | SEP 30 | 55.81 | | | | | | |

## CITY OF NORFOLK

365223076122101. Local number, 61C1.
LOCATION.--Lat 36°52'23", long 76°12'21", Hydrologic Unit 02080208, Moore's Bridge Filter Plant, Norfolk. Owner: City of Norfolk.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 970 ft, screened 900 to 960 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 10.80 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.15 ft above land-surface datum. Measuring point changed from 4.0 ft above land-surface datum, Dec. 15, 1979.
REMARKS.--U.S. Geological Survey test well 1. Water level affected by pumping and recharge operations in nearby wells May 18, 1971, to Nov. 5, 1973. Recorder removed Dec. 15, 1979; manual measurements thereafter.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.70 ft below land-surface datum, Feb. 17, 1968; lowest measured, 53.34 ft below land-surface datum, Sept. 18, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 24 | 51.21 | FEB 6 | 51.05 | MAY 7 | 51.97 | JUN 6 | 52.18 | AUG 1 | 52.75 | SEP 18 | 53.34 |
| DEC 4 | 51.14 | MAR 20 | 51.50 | | | | | | | | |

## ORANGE COUNTY

381002078094201. Local number, 45P1.
LOCATION.--Lat 38°10'02", long 78°09'42", Hydrologic Unit 02080106. Gordonsville. Owner: M. L. Johnson.
AQUIFER.--Phyllite of Evington Group of Cambrian or Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 98 ft, length of casing unknown.
INSTRUMENTATION.--Continuous strip-chart recorder.
DATUM.--Elevation of land-surface datum is 480 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 30.
PERIOD OF RECORD.--February 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.83 ft below land-surface datum, Apr. 10, 1973; lowest recorded, 35.90 ft below land-surface datum, Jan. 31, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 27.28 | 28.89 | 28.79 | 27.41 | 24.51 | 23.17 | 23.47 | 25.56 | 26.40 | 26.91 | --- | 27.14 |
| 10 | 27.60 | 29.22 | 27.82 | 26.07 | 24.20 | 23.36 | 24.17 | 25.84 | 26.70 | 27.20 | 29.20 | 27.58 |
| 15 | 27.78 | 29.57 | 27.89 | 25.67 | 22.89 | 23.74 | 24.17 | 26.17 | 25.77 | 27.53 | 29.20 | 28.23 |
| 20 | 28.16 | 29.88 | 28.13 | 25.63 | 22.98 | 23.91 | 24.63 | 26.33 | 26.02 | 27.95 | 28.72 | 28.50 |
| 25 | 28.50 | 29.97 | 28.66 | 25.51 | 23.00 | 23.92 | 24.80 | 26.02 | 26.34 | 28.35 | 26.79 | 28.80 |
| EOM | 28.87 | 29.17 | 28.77 | 26.07 | 23.10 | 23.47 | 25.30 | 25.90 | 26.72 | 28.70 | 26.85 | --- |

WTR YR 1985 HIGHEST 22.63 FEB 24, 1985 LOWEST 30.07 NOV 26, 1984

## PRINCE WILLIAM COUNTY

384931077420301. Local number, 49U1.
LOCATION.--Lat 38°49'30", long 77°42'08", Hydrologic Unit 02070010, north of State Highway 55 near Thoroughfare Gap, 3.7 mi west of Haymarket. Owner: Virginia Department of Highways and Transportation.
AQUIFER.--Shale and sandstone of Newark Group of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 345 ft, cased to 20 ft, open hole 20 to 345 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 383 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
REMARKS.--Recorder removed Feb. 9, 1980; manual measurements thereafter.
PERIOD OF RECORD.--June 1969 to current year. Unpublished records available October 1968 to May 1969.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.59 ft below land-surface datum, Mar. 19, 1975; lowest recorded, 10.22 ft below land-surface datum, Nov. 8, 9, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 9 | 7.69 | DEC 19 | 6.23 | MAR 22 | 6.05 | JUN 18 | 6.79 | AUG 6 | 8.40 | SEP 19 | 8.85 |
| NOV 14 | 7.97 | FEB 5 | 5.21 | MAY 9 | 6.95 | | | | | | |

385607077381101. Local number, 49V1.
LOCATION.--Lat 38°56'07", long 77°38'11", Hydrologic Unit 02070010, north of Haymarket at intersection of State Highways 600 and 615. Owner: J. H. Hutchison.
AQUIFER.--Shale and sandstone of Newark Group of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 165 ft, cased to 10 ft, open hole 10 to 65 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 420 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1 ft above land-surface datum. Readings from 1979 to 1981 should be 0.7 ft lower than previously published.
PERIOD OF RECORD.--November 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.85 ft below land-surface datum, Oct. 12, 1979; lowest recorded, 12.28 ft below land-surface datum, July 12, 13, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 10.29 | 10.06 | 8.65 | 8.62 | 9.25 | 9.15 | 8.99 | 10.07 | 10.30 | 11.25 | 11.81 | 11.68 |
| 10 | 10.41 | 10.13 | 8.44 | 8.74 | 9.36 | 9.26 | 9.44 | 10.29 | 10.37 | 11.33 | 11.89 | 11.79 |
| 15 | 10.42 | 10.29 | 8.80 | 9.13 | 8.72 | --- | 9.63 | 10.37 | 10.53 | 11.56 | 12.26 | 11.73 |
| 20 | 10.45 | 10.08 | 9.09 | 9.44 | 9.03 | --- | 9.84 | 10.33 | 10.70 | 11.54 | 11.66 | 11.90 |
| 25 | 10.47 | 10.05 | 9.25 | 9.57 | 8.84 | 9.23 | 9.92 | 10.14 | 10.87 | 11.86 | 11.51 | 12.20 |
| EOM | 10.20 | 8.93 | 9.40 | 9.83 | 8.78 | 8.96 | 10.22 | 10.33 | 11.13 | 11.58 | 11.54 | 11.77 |

WTR YR 1985 HIGHEST 8.17 DEC 8, 1984 LOWEST 12.27 AUG 16, 1985

## PRINCE WILLIAM COUNTY--Continued

383423077245901. Local number, 5187.
LOCATION.--Lat 38°34'23", long 77°24'59", Hydrologic Unit 02070011, 0.7 mi southeast of Belfair Crossroads and 700 ft north of State Highway 619. Owner: National Park Service.
AQUIFER.--Wissahickon Formation of Paleozoic age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in., depth 490 ft, cased to 50 ft, open hole 50 to 490 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 295 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.
PERIOD OF RECORD.--December 1977 to current year. Unpublished records available September 1973 to November 1975.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.14 ft below land-surface datum, Apr. 20, 1983; lowest measured, 11.51 ft below land-surface datum, Sept. 28, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 28 | 4.50 | JAN 29 | 3.71 | MAR 20 | 3.12 | MAY 29 | 5.53 | JUL 30 | 9.15 | SEP 26 | 10.90 |

## PULASKI COUNTY

370516080411501. Local number, 2582.
LOCATION.--Lat 37°05'16", long 80°41'15", Hydrologic Unit 05050001, in the town of Dublin. Owner: Town of Dublin.
AQUIFER.--Conococheague Formation of Late Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 370 ft, length of casing unknown.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 2,170 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum. Measuring point changed from top of recorder shelf, 2.23 ft above land-surface datum, July 21, 1974.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 59. Recorder removed July 21, 1974; manual measurements thereafter.
PERIOD OF RECORD.--April 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.00 ft below land-surface datum, Mar. 18, 1973; lowest measured, 82.50 ft below land-surface datum, Oct. 5, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 23 | 79.42 | JAN 15 | 78.58 | APR 9 | 77.90 | MAY 23 | 78.20 | JUL 9 | 78.22 | AUG.20 | 70.30 |
| DEC 4 | 81.40 | FEB 26 | 77.45 | | | | | | | | |

## CITY OF ROANOKE

371653079552101. Local number, 31G1.
LOCATION.--Lat 37°16'53", long 79°55'21", Hydrologic Unit 03010101, in the city of Roanoke. Owner: Nelson-Roanoke Corporation.
AQUIFER.--Rome Formation of Cambrian age. Prior to 1974, reported as Elbrook formation.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 48 ft, length of casing unknown.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 930 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 8. Recorder removed July 21, 1974; manual measurements thereafter.
PERIOD OF RECORD.--August 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.97 ft below land-surface datum, June 22, 1972; lowest measured, 23.15 ft below land-surface datum, May 23, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 22 | 17.96 | JAN 14 | 17.66 | APR 8 | 17.71 | JUL 8 | 17.78 | AUG 19 | 16.34 | SEP 30 | 17.86 |
| DEC 3 | 17.46 | FEB 25 | 17.62 | MAY 20 | 17.88 | | | | | | |

## ROCKBRIDGE COUNTY

373758079271601. Local number, 35K1.

LOCATION.--Lat 37°37'58", long 79°27'16", Hydrologic Unit 02080202, in the town of Glasgow. Owner: Town of Glasgow.

AQUIFER.--Rome Formation of Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 695 ft, cased to 101 ft, open hole from 101 to 695 ft.

INSTRUMENTATION.--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Water Control Board as observation well 63.

PERIOD OF RECORD.--June 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 15.92 ft below land-surface datum, July 8, 1972; lowest recorded, 29.13 ft below land-surface datum, Dec. 13, 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 25.67 | 26.29 | 25.60 | 24.58 | 24.00 | 23.86 | 24.27 | 25.21 | 25.57 | --- | 27.25 | 26.48 |
| 10 | 25.82 | 26.38 | 25.30 | 24.40 | 24.01 | 24.00 | 24.60 | 25.40 | 25.72 | --- | 27.36 | 26.69 |
| 15 | 25.91 | 26.57 | 25.40 | 24.53 | 23.32 | 24.28 | 24.60 | 25.56 | 25.92 | 26.73 | 27.53 | 26.87 |
| 20 | 26.12 | 26.61 | 25.47 | 24.71 | 23.50 | 24.44 | 24.80 | 25.70 | --- | 26.90 | 26.60 | 27.02 |
| 25 | 26.20 | 26.62 | 25.48 | 24.80 | 23.57 | 24.09 | 24.94 | 25.48 | --- | 27.08 | 26.43 | 27.24 |
| EOM | 26.30 | 25.80 | 25.50 | 25.01 | 23.62 | 24.13 | 25.17 | 25.32 | --- | 27.11 | 26.38 | 27.40 |

WTR YR 1985 HIGHEST 23.26 FEB 15, 1985 LOWEST 27.59 AUG 17, 1985

## ROCKINGHAM COUNTY

382150078424001. Local number, 41Q1.

LOCATION.--Lat 38°21'50", long 78°42'40", Hydrologic Unit 02070005, at Virginia Department of Highways and Transportation garage near McGaheysville. Owner: U.S. Geological Survey.

AQUIFER.--Conococheague limestone of Late Cambrian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 1/4 in., depth 310 ft, cased to 131 ft, open hole 131 to 310 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 1,105 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.38 ft below land-surface datum, Dec. 26, 1972; lowest recorded, 87.18 ft below land-surface datum, Oct. 26, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 67.13 | 67.94 | 67.83 | 67.15 | 66.53 | 65.97 | 66.85 | 67.96 | 68.87 | 68.84 | 70.13 | 69.49 |
| 10 | 67.26 | 68.09 | 67.51 | 66.90 | 66.51 | 66.16 | 67.08 | 68.07 | 68.94 | 69.14 | 70.57 | 69.79 |
| 15 | 67.45 | 68.31 | 67.44 | 66.89 | 65.07 | 66.39 | 67.26 | 68.28 | 67.75 | 68.89 | 71.08 | 70.34 |
| 20 | 67.74 | 68.54 | 67.43 | 67.01 | 65.33 | 66.63 | 67.49 | 68.43 | 67.83 | 69.00 | 70.94 | 70.93 |
| 25 | 67.91 | 68.70 | 67.50 | 67.26 | 65.65 | 66.71 | 67.70 | 68.54 | 68.11 | 69.34 | 70.28 | 71.54 |
| EOM | 68.00 | 68.27 | 67.58 | 67.52 | 65.76 | 66.78 | 67.87 | 68.69 | 68.50 | 69.72 | 70.28 | 72.15 |

WTR YR 1985 HIGHEST 64.93 FEB 16, 1985 LOWEST 72.15 SEP 30, 1985

## SOUTHAMPTON COUNTY

364109077230701. Local number, 51B3.

LOCATION.--Lat 36°41'09", long 77°23'07", Hydrologic Unit 03010201, 150 ft east of the intersection of State Highway 615 and U.S. 58, near Adams Grove. Owner: U.S. Geological Survey.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 253 ft, screened 165 to 175 ft, open hole from 175 to 253 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 12[illegible] ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.20 ft above land-surface datum.

PERIOD OF RECORD.--July 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 54.21 ft below land-surface datum, Apr. 30, 1978; lowest recorded, 60.03 ft below land-surface datum, Oct. 24, 25, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 57.03 | 57.52 | 57.34 | 56.66 | 56.02 | 55.68 | 55.93 | 56.33 | 56.96 | 58.00 | 57.57 | 57.67 |
| 10 | 57.12 | 57.63 | 57.15 | 56.45 | 55.95 | 55.80 | 55.97 | 56.48 | 57.11 | 58.20 | 57.55 | 57.87 |
| 15 | 57.20 | 57.65 | 57.10 | 56.43 | 55.80 | 55.84 | 56.01 | 56.55 | 57.29 | 58.03 | 57.70 | 58.13 |
| 20 | 57.35 | 57.63 | 57.01 | 56.34 | 55.79 | 55.87 | 56.05 | 56.75 | 57.46 | 57.80 | 57.65 | 58.30 |
| 25 | 57.45 | 57.61 | 57.00 | 56.33 | 55.78 | 55.81 | 56.11 | 56.74 | 57.72 | 57.85 | 57.54 | 58.35 |
| EOM | 57.53 | 57.53 | 56.99 | 56.32 | 55.74 | 55.84 | 56.28 | 56.75 | 57.92 | 57.64 | 57.53 | 57.66 |

WTR YR 1985 HIGHEST 55.66 MAR 5, 1985 LOWEST 58.35 SEP 25, 26, 1985

364706077072301. Local number, 54C1.

LOCATION.--Lat 36°47'06", long 77°07'23", Hydrologic Unit 03010201, in the town of Sebrell. Owner: Norfolk and Western Railway.

AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 344 ft, screen depth unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 58.4 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.

PERIOD OF RECORD.--1907, July 1938, April 1940 to December 1946, September 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.00 ft below land-surface datum, 1907; lowest measured, 97.48 ft below land-surface datum, Oct. 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 5 | 95.80 | JAN 3 | 95.89 | MAR 18 | 95.52 | JUN 19 | 95.56 | AUG 2 | 95.75 | SEP 5 | 96.09 |
| NOV 2 | 95.89 | FEB 4 | 95.44 | MAY 6 | 95.32 | | | | | | |

## CITY OF SUFFOLK

363834076382301. Local number, 57B8.

LOCATION.--Lat 36°38'27", long 76°38'05", Hydrologic Unit 03010205, 0.3 mi southwest of State Highway 664 and 0.8 mi east of U.S. Highway 13. Owner: Soren F. Andresen.

AQUIFER.--Sand of Chesapeake Group.

WELL CHARACTERISTICS.--Drilled flowing water well, diameter 2 in., depth 65 ft, screened 50 to 65 ft.

INSTRUMENTATION.--Bimonthly measurement by USGS personnel using a manometer.

DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: At land-surface datum.

REMARKS.--All water levels from Apr. 13 to Sept. 28, 1978, should be 1.20 ft higher than previously published.

PERIOD OF RECORD.--November 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.51 ft above land-surface datum, Mar. 9, 1979; lowest measured, at land-surface datum, Sept. 26, 1980.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 24 | 2.45 | FEB 6 | 6.20 | MAR 19 | 5.88 | JUN 20 | 4.55 | AUG 1 | 4.48 | SEP 17 | 1.70 |
| DEC 4 | 2.90 | | | | | | | | | | |

NOTE.--Flowing well, readings given are above land-surface datum.

CITY OF SUFFOLK--Continued

363810076381001. Local number, 57B9.
LOCATION.--Lat 36°38'36", long 76°38'10", Hydrologic Unit 03010205, 0.2 mi southwest of State Highway 664, 0.7 mi southeast of U.S. Highway 13, and 6.7 mi southwest of Suffolk. Owner: Soren Andresen.
AQUIFER.--Sand of Chesapeake Group.
WELL CHARACTERISTICS.--Drilled flowing unused water well, diameter 1.25 in., depth 85 ft, screened 70 to 85 ft.
INSTRUMENTATION.--Bimonthly measurement by USGS personnel using a manometer.
DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: At land-surface datum.
REMARKS.--All water levels from Apr. 13 to Sept. 28, 1978, should be 0.78 ft higher than previously published.
PERIOD OF RECORD.--November 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.85 ft above land-surface datum, Feb. 7, 1983; lowest measured, 0.22 ft below land-surface datum, Sept. 26, 1980.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 24 | 1.70 | FEB 6 | 5.50 | MAR 19 | 4.91 | JUN 20 | 3.75 | AUG 1 | 3.37 | SEP 17 | 0.65 |
| DEC 4 | 2.18 | | | | | | | | | | |

NOTE.--Flowing well, readings given are above land-surface datum.

363928076332901. Local number, 58B13.
LOCATION.--Lat 36°39'28", long 76°33'29", Hydrologic Unit 03010205, 4 mi south of Suffolk and east of State Highway 642. Owner: Melvin Brinkley.
AQUIFER.--Sand of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in., depth 15 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 40 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.90 ft above land-surface datum.
PERIOD OF RECORD.--August 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.95 ft below land-surface datum, May 25, 1979; lowest recorded, 13.44 ft below land-surface datum, Jan. 23-26, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 10.50 | 11.01 | 11.40 | 10.34 | 7.71 | 7.25 | 7.66 | 9.13 | 10.33 | 10.48 | 10.84 | 11.38 |
| 10 | 10.61 | 11.08 | 10.89 | 10.52 | 7.56 | 7.54 | 8.01 | 9.35 | 10.08 | 10.62 | 10.91 | 11.49 |
| 15 | 10.71 | 11.14 | 10.75 | 10.31 | 6.66 | 7.88 | 8.19 | 9.56 | 10.06 | 10.63 | 11.00 | 11.59 |
| 20 | 10.83 | 11.21 | 10.88 | 9.98 | 7.30 | 8.10 | 8.41 | 9.75 | 10.07 | 10.63 | 11.08 | 11.71 |
| 25 | 10.89 | 11.28 | 10.93 | 10.04 | 7.54 | 7.69 | 8.63 | 9.93 | 10.20 | 10.69 | 11.17 | 11.81 |
| EOM | 10.95 | 11.34 | 11.00 | 9.47 | 7.38 | 7.38 | 8.90 | 10.15 | 10.34 | 10.77 | 11.28 | 11.53 |

WTR YR 1985 HIGHEST 6.60 FEB 12, 13, 1985 LOWEST 11.83 SEP 26, 1985

364330076345101. Local number, 58B235.
LOCATION.--Lat 36°43'30", long 76°34'51", Hydrologic Unit 02080208, in the Planters Plant in the city of Suffolk. Owner: Planters Peanut Company.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in. to 254 ft, 8 in. from 254 to 422 ft, 6 in. from 422 to 570.0 ft, depth 570 ft, screened 530 to 561.6 ft.
INSTRUMENTATION.--Bimonthly measurement with chalked tape by USGS personnel.
DATUM.--Elevation of land-surface datum is 53 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 2.50 ft above land-surface datum.
PERIOD OF RECORD.--November 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 124.60 ft below land-surface datum, Sept. 5, 1984; lowest measured, 142.30 ft below land-surface datum, July 2, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 24 | 124.76 | FEB 6 | 129.93 | MAR 20 | 131.25 | JUN 6 | 135.87 | AUG 1 | 134.72 | SEP 17 | 132.36 |
| DEC 4 | 127.17 | | | | | | | | | | |

CITY OF SUFFOLK--Continued

364512076343702. Local number, 58C53.
LOCATION.--Lat 36°45'12", long 76°34'37", Hydrologic Unit 02080208, 750 ft northeast of Virginia Department of Highways and Transportation fuel storage area and 2,000 ft east of U.S. Highway 460. Owner: Virginia State Water Control Board.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 294 ft, diameter 2 in. from 294 to 881 ft, depth 896 ft, screened 881 to 896 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.40 ft above land-surface datum.
REMARKS.--Water levels for Mar. 5 and 10, 1983, published in WDR VA-83-1 are in error because the float hung in the well. These values should not be used.
PERIOD OF RECORD.--February 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 69.41 ft below land-surface datum, Apr. 24, 1983; lowest recorded, 94.22 ft below land-surface datum, Sept. 24, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 71.15 | 73.51 | 74.95 | 78.46 | 78.49 | 78.89 | 79.73 | 84.56 | 86.60 | 86.99 | 82.05 | 84.90 |
| 10 | 71.16 | 73.00 | 75.12 | 78.47 | 78.25 | 79.14 | 80.09 | 83.19 | 83.04 | 82.99 | 83.20 | 82.85 |
| 15 | 72.98 | 74.48 | 75.54 | 78.47 | 78.34 | 79.26 | 80.09 | 84.66 | 85.78 | 81.81 | 83.45 | 84.90 |
| 20 | 71.54 | 73.52 | 79.67 | 78.48 | 78.59 | 79.44 | 80.29 | 85.07 | 86.40 | 81.05 | 81.24 | 92.23 |
| 25 | 71.41 | 73.98 | 78.44 | 78.48 | 78.67 | 79.48 | 80.58 | 85.62 | 86.40 | 80.53 | 81.25 | 93.61 |
| EOM | 71.24 | 75.13 | 78.45 | 78.49 | 78.80 | 79.53 | 80.88 | 86.80 | 87.23 | 79.86 | 82.35 | 88.73 |

WTR YR 1985 HIGHEST 70.47 OCT 1, 1984 LOWEST 94.22 SEP 24, 1985

364512076343705. Local number, 58C56.
LOCATION.--Lat 36°45'12", long 76°34'37", Hydrologic Unit 02080208, 750 ft northeast of Virginia Department of Highways and Transportation fuel storage area and 2,000 ft east of U.S. Highway 460. Owner: Virginia State Water Control Board.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 557 ft, depth 567 ft, screened from 557 to 567 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 3.35 ft above land-surface datum. Measuring point changed from 3.40 ft above land-surface datum July 9, 1985.
REMARKS.--Water levels for Aug. 25 and 31, 1983, published in WDR VA-83-1 are in error because the float hung in the well. These values should not be used.
PERIOD OF RECORD.--February 1983 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 77.24 ft below land-surface datum, Oct. 1, 1984; lowest recorded, 91.28 ft below land-surface datum, July 3, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 77.92 | 77.81 | 81.84 | 83.92 | 85.51 | 86.37 | 87.23 | 90.17 | 91.18 | 90.88 | 87.79 | 85.84 |
| 10 | 77.92 | 78.20 | 82.14 | 84.31 | 85.69 | 86.58 | 88.43 | 90.74 | 90.29 | 90.77 | 87.26 | 85.77 |
| 15 | 77.96 | 78.98 | 82.62 | 84.49 | 85.86 | 86.75 | 88.51 | 90.91 | 90.07 | 90.51 | 87.06 | 85.86 |
| 20 | 77.99 | 79.06 | 82.97 | 84.77 | 86.08 | 86.92 | 88.85 | 90.64 | 89.86 | 90.07 | 86.70 | 85.79 |
| 25 | 78.08 | 80.62 | 83.41 | 84.90 | 86.12 | 86.91 | 89.55 | 90.89 | 90.56 | 89.68 | 86.34 | 85.67 |
| EOM | 77.96 | 81.64 | 83.75 | 85.23 | 86.22 | 86.95 | 90.00 | 91.19 | 90.89 | 88.55 | 85.98 | 85.19 |

WTR YR 1985 HIGHEST 77.24 OCT 1, 1984 LOWEST 91.28 JUL 3, 1985

## SURRY COUNTY

370408076460101. Local number, 56R1.

LOCATION.--Lat 37°04'08", long 76°40'01", Hydrologic Unit 03010202, on State Highway 617, 3.2 mi southwest of Bacons Castle. Owner: Buster E. Cox.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 18 in. to 360 ft, 8 in. from 333.5 to 705 ft, depth 705 ft, screened 401 to 411 ft, 431 to 441 ft, 463 to 473 ft, 495 to 505 ft, 540 to 555 ft, 700 to 705 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 93 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.6 ft above land-surface datum.

PERIOD OF RECORD.--March 1942, April 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.52 ft below land-surface datum, Mar. 10, 1942; lowest recorded, 151.94 ft below land-surface datum, Sept. 22, 25, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 149.47 | 149.40 | 149.36 | 149.06 | 149.08 | 149.13 | 149.11 | 149.45 | 149.73 | 150.41 | 150.99 | 151.60 |
| 10 | 149.52 | 149.47 | 149.24 | 149.10 | 149.05 | 149.16 | 149.25 | 149.54 | 149.72 | 150.51 | 151.06 | 151.70 |
| 15 | 149.46 | 149.51 | 149.31 | 149.04 | 148.99 | 149.21 | 149.20 | 149.61 | 149.88 | 150.66 | 151.24 | 151.90 |
| 20 | 149.45 | 149.52 | 149.25 | 149.00 | 149.13 | 149.22 | 149.27 | 149.63 | 150.04 | 150.73 | 151.23 | 151.93 |
| 25 | 149.53 | 149.46 | 149.36 | 148.95 | 149.13 | 149.15 | 149.31 | 149.50 | 150.20 | 150.82 | 151.33 | 151.94 |
| EOM | 149.54 | 149.32 | 149.31 | 149.11 | 149.14 | 149.12 | 149.43 | 149.63 | 150.32 | 150.82 | 151.51 | 151.54 |

WTR YR 1985 HIGHEST 148.77 FEB 12, 1985 LOWEST 151.94 SEP 22, 25, 1985

## WESTMORELAND COUNTY

381110076550501. Local number, 55P5.

LOCATION.--Lat 38°11'10", long 76°55'05", Hydrologic Unit 02070011, behind craft shop at George Washington birthplace. Owner: National Park Service.

AQUIFER.--Sand of undifferentiated Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 471 ft, screened 451 to 466 ft.

INSTRUMENTATION.--Digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 24 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--June 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.05 ft below land-surface datum, June 24, 1974; lowest recorded, 37.65 ft below land-surface datum, Sept. 20, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 35.25 | 34.55 | 34.83 | 34.56 | 34.57 | 34.47 | 34.27 | 34.57 | 34.72 | 35.10 | 35.65 | 35.56 |
| 10 | 35.23 | 34.69 | 34.93 | 34.83 | 35.17 | 34.60 | 34.69 | 34.76 | 34.70 | 35.16 | 35.58 | 35.55 |
| 15 | 34.74 | 35.16 | 34.69 | 34.87 | 34.35 | 34.59 | 34.39 | 34.75 | 34.92 | 35.30 | 35.88 | 35.72 |
| 20 | 34.80 | 34.95 | 34.56 | 34.66 | 34.65 | 34.51 | 34.56 | 34.90 | 34.86 | 35.39 | 35.61 | 35.74 |
| 25 | 35.02 | 34.87 | 34.81 | 34.66 | 34.65 | 34.40 | 34.26 | 34.54 | 35.04 | 35.52 | 35.42 | 35.63 |
| EOM | 34.80 | 34.71 | 34.70 | 34.56 | 34.60 | 34.24 | 34.59 | 34.56 | 34.96 | 35.66 | 35.62 | 35.54 |

WTR YR 1985 HIGHEST 33.63 FEB 13, 1985 LOWEST 35.88 AUG 15, 1985

381132076551001. Local number, 55P9.

LOCATION.--Lat 38°11'32", long 76°55'10", Hydrologic Unit 02080104, 0.6 mi north of the end of State Highway 204, off State Highway 3 at George Washington Birthplace National Monument. Owner: National Park Service.

AQUIFER.--Sand of Quaternary age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 36 in., depth 22.6 ft.

INSTRUMENTATION.--Bimonthly measurements with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 17 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of concrete lip on casing, 1.65 ft above land-surface datum.

PERIOD OF RECORD.--July 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.11 ft below land-surface datum, Oct. 11, 1979; lowest measured, 11.38 ft below land-surface datum, Dec. 1, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 13 | 10.13 | FEB 15 | 1.03 | MAR 21 | 2.53 | MAY 10 | 6.44 | JUL 11 | 9.73 | | |

## WESTMORELAND COUNTY--Continued

380538076490801. Local number, 56H1.
LOCATION.--Lat 38°05'38", long 76°49'08", Hydrologic Unit 02080104, at Washington and Lee School near Montross.
Owner: Westmoreland County Public Schools.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 189 ft, 2 in. from 189 to 641 ft, depth 641 ft, screened 608 to 628 ft.
INSTRUMENTATION.--Six-week measurement with chalked tape by Virginia Water Control Board personnel.
DATUM.--Elevation of land-surface datum is 149 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum. Top of casing previously reported as 1 ft.
REMARKS.--Records provided by the Virginia Water Control Board as observation well 16. Recorder removed Mar. 31, 1979; manual measurements thereafter.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 133.47 ft below land-surface datum, Aug. 28, 1967; lowest measured, 157.20 ft below land-surface datum, Jan. 28, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

| DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL | DATE | WATER LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR 27 | 153.00 | JUN 11 | 153.27 | JUL 11 | 154.08 | AUG 21 | 153.75 | | | | |

## YORK COUNTY

371916076375901. Local number, 57G2.
LOCATION.--Lat 37°19'16", long 76°37'59", Hydrologic Unit 02080107, at Building 3101, Camp Peary, Williamsburg.
Owner: Camp Peary Naval Reservation.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused well, diameter 10 in. to 352 ft, diameter 8 in. from 352 to 387 ft, depth 387 ft.
INSTRUMENTATION.--Digital recorder--60-minute punch.
DATUM.--Elevation of land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map. Measuring point: Top of casing, 0.20 ft above land-surface datum. Prior to May 1981, measuring point at land-surface datum.
REMARKS.--Records provided by the Virginia Water Control Board from January 1968 to September 1976.
PERIOD OF RECORD.--January 1968 to September 1975, May 1981 to current year. Unpublished record available January to August 1976.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 43.09 ft below land-surfce datum, Mar. 7, 1968; lowest recorded, 88.62 ft below land-surface datum, Sept. 16, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
LOWEST VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 83.61 | 83.69 | 83.18 | 81.66 | 80.61 | 80.07 | 80.35 | 81.97 | 83.44 | --- | 86.75 | 88.02 |
| 10 | 83.48 | --- | 82.95 | 81.78 | 80.80 | 80.11 | 80.60 | 81.86 | 83.52 | 85.08 | 86.64 | 88.10 |
| 15 | 82.73 | --- | 82.45 | 81.31 | 80.30 | 79.88 | 80.33 | 81.88 | 83.77 | 85.74 | 87.42 | 88.60 |
| 20 | 82.99 | --- | 82.31 | 81.23 | 80.49 | 79.82 | 81.09 | 82.57 | --- | 86.13 | 87.31 | 88.54 |
| 25 | 83.21 | --- | 82.33 | 80.83 | 80.35 | 79.63 | 80.97 | 82.51 | --- | 86.38 | 87.55 | 88.17 |
| EOM | 83.75 | --- | 81.66 | 80.21 | 80.24 | 79.52 | 81.65 | 83.14 | --- | 86.70 | 87.86 | 88.30 |

WTR YR 1985 HIGHEST 78.58 MAR 22, 24, 1985 LOWEST 88.62 SEP 16, 1985

## WATER QUALITY DATA, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985

### JAMES CITY COUNTY

| LOCAL IDENT-I-FIER | STATION NUMBER | GEO-LOGIC UNIT | DATE | DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) | DEPTH OF WELL, TOTAL (FEET) | DEPTH TO TOP OF SAMPLE INTER-VAL (FT) | DEPTH TO BOT-TOM OF SAMPLE INTER-VAL (FT) | ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) | PUMP OR FLOW PERIOD PRIOR TO SAM-PLING (MIN) |
|---|---|---|---|---|---|---|---|---|---|
| 56H 25 | 372506076511701 | 217PTXN | 04-09-85 | 158.30 | 929.00 | 888 | 908 | 103 | 240 |
| 56H 26 | 372506076511702 | 217PPSC | 04-10-85 | 156.50 | 581.00 | 550 | 560 | 103 | 120 |
| 56H 27 | 372506076511703 | 211CRCSU | 04-10-85 | 153.40 | 401.00 | 370 | 380 | 103 | 115 |
| 56H 28 | 372506076511704 | 125PLCN | 04-11-85 | 153.10 | 321.00 | 290 | 300 | 103 | 90 |
| 56H 29 | 372506076511705 | 124EOCN | 04-11-85 | 111.70 | 240.00 | 204 | 214 | 103 | 45 |
| 56H 30 | 372506076511706 | 121CSPEU | 04-11-85 | 20.30 | 60.00 | 50 | 60 | 103 | 105 |

| LOCAL IDENT-I-FIER | DEPTH OF HOLE, TOTAL (FEET) | FLOW RATE, INSTAN-TANEOUS (GPM) | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH (STAND-ARD UNITS) | TEMPER-ATURE (DEG C) | COLOR (PLAT-INUM-COBALT UNITS) | OXYGEN, DIS-SOLVED (MG/L) | BARO-METRIC PRES-SURE (MM OF HG) | HARD-NESS (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 56H 25 | 1110 | 7.5 | 2200 | 7.8 | 19.0 | 10 | 0.2 | 767 | 18 | 5.1 | 1.2 |
| 56H 26 | 581 | 7.5 | 540 | 7.9 | 18.5 | -- | 0.1 | 775 | 54 | 18 | 2.3 |
| 56H 27 | 401 | 7.5 | 725 | 7.8 | 17.0 | 10 | 0.2 | 773 | 13 | 3.5 | 0.97 |
| 56H 28 | 400 | 3.8 | 640 | 8.2 | 18.0 | 10 | 1.3 | 770 | 40 | 11 | 3.1 |
| 56H 29 | 240 | 7.5 | 315 | 7.6 | 16.0 | 10 | 0.1 | 771 | 140 | 48 | 3.7 |
| 56H 30 | 60 | 1.0 | 390 | 7.3 | 16.0 | 15 | 2.3 | 770 | 200 | 78 | 1.1 |

| LOCAL IDENT-I-FIER | SODIUM, DIS-SOLVED (MG/L AS NA) | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY FIELD (MG/L AS CACO3) | ALKA-LINITY LAB (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 56H 25 | 450 | 5.7 | 484 | 480 | 61 | 340 | 0.3 | 15 | 1190 | 1200 | <0.10 |
| 56H 26 | 100 | 8.6 | 262 | 258 | 11 | 6.0 | 1.1 | 20 | 310 | 320 | <0.10 |
| 56H 27 | 160 | 8.4 | 350 | 347 | 16 | 15 | 2.2 | 30 | 432 | 450 | <0.10 |
| 56H 28 | 120 | 11 | 305 | 298 | 19 | 13 | 1.8 | 20 | 357 | 380 | <0.10 |
| 56H 29 | 10 | 5.2 | 147 | 149 | 4.8 | 3.9 | 0.2 | 56 | 204 | 220 | <0.10 |
| 56H 30 | 4.7 | 0.8 | 182 | 194 | 6.5 | 9.0 | <0.1 | 12 | 218 | 220 | <0.10 |

| LOCAL IDENT-I-FIER | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | ALUM-INUM, DIS-SOLVED (UG/L AS AL) | BORON, DIS-SOLVED (UG/L AS B) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | ZINC, DIS-SOLVED (UG/L AS ZN) | C-13/ C-12 STABLE ISOTOPE RATIO PER MIL | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 56H 25 | 0.09 | 0.03 | 100 | 1200 | 1000 | 500 | 30 | 40 | 20 | -6.2 | 1.5 |
| 56H 26 | 0.04 | 0.06 | 100 | 40 | 780 | 170 | 60 | 68 | <3 | -5.3 | 1.5 |
| 56H 27 | 0.15 | 0.39 | 100 | 790 | 250 | 32 | <10 | 12 | <3 | -4.6 | 1.8 |
| 56H 28 | 0.19 | 0.12 | <100 | <20 | 2200 | 27 | 20 | 14 | <3 | -7.5 | 1.8 |
| 56H 29 | -- | 0.02 | <100 | 40 | 380 | 270 | 30 | 23 | <3 | -12.3 | 1.3 |
| 56H 30 | 0.02 | 0.09 | <100 | 20 | 8700 | 38 | 210 | 170 | 6 | -12.7 | 2.7 |

GEOLOGIC UNIT (AQUIFER):

121CSPEU - UPPER CHESAPEAKE SERIES
124EOCN - EOCENE SERIES
125PLCN - PALEOCENE SERIES
211CRCSU - UPPER CRETACEOUS SERIES
217PPSC - PATAPSCO FORMATION
217PTXN - PATUXENT FORMATION

# INDEX

Page
Abingdon, Spring Creek near..........345,351
Abrams Creek near Winchester.......... 41
Access to WATSTORE data.......... 19-20
Accomack County, ground-water records in.......... 368
Accotink Creek, miscellaneous site.......... 353
  near Annandale.......... 79
Accuracy of stage and water-discharge records.. 14
Acre-foot, definition of.......... 20
Aden, Cedar Run near.......... 82
Adenosine triphosphate (ATP), definition of.... 20
Afton, Stockton Creek near.......... 341
Albemarle County, ground-water records in.......... 368
Alexandria, Cameron Run at.......... 339
  Fourmile Run at.......... 338
Algae, definition of.......... 20
Algal growth potential (AGP), definition of.... 20
Allen Creek near Boydton.......... 299
Allisonia, Big Reed Island Creek near.......... 307
  New River at.......... 308
Altavista, Roanoke River at..........270-273
Amelia, Flat Creek near.......... 342
Amherst, Buffalo River near.......... 341
Analyses of samples collected at
    partial-record, special study, and
    miscellaneous sites..........364-366
Andersonville, Holiday Creek near..........209-211
Annandale, Accotink Creek near.......... 79
Appomattox County, ground-water records in.....360-369
Appomattox, Right Hand Fork near.......... 342
Appomattox River, at Farmville.......... 213
  at Matoaca..........216-218
  at Mattoax.......... 214
Aquia Creek near Garrisonville.......... 96
Aquifer, definition of.......... 20
  explanation of.......... 18
Ark, Beaverdam Swamp near.......... 118
Arlington County, ground-water records in.......... 369
Arrangement of surface-water quality records... 15
Artesian, definition of.......... 20
Artificial substrate, definition of.......... 26
Arvonia, Slate River near.......... 192
Ash mass, definition of.......... 21
Ashland, South Anna River near.......... 124
Assamoosick Swamp near Sebrell.......... 246
Average discharge, explanation of.......... 13
Aylett, Aylett Creek at.......... 340
Aylett Creek at Aylett.......... 340

Back Creek (James River basin), at Sunrise.....143-145
  near Mountain Grove..........149-151
  near Sunrise..........140-142
Back Creek (Potomac River basin) at Gainesboro. 348
Back Creek (Roanoke River basin) near Dundee... 264
Bacova, Jackson River near..........137-139
Bacteria, definition of.......... 20
  fecal coliform, definition of.......... 20
  fecal streptococcal, definition of.......... 21
  total coliform, definition of.......... 20
Bailey Branch tributary at Spring Grove.......... 342
Bane, Walker Creek at.......... 312
Banister River at Halifax.......... 296
Bartlick, Russell Fork at.......... 344
Bassett, Smith River at.......... 287
Bath Alum, Thompson Creek near.......... 348
Battle Run near Laurel Mills.......... 99
Bearskin Creek near Chatham.......... 343
Beaver Creek at Bristol.......... 332
Beaverdam Creek (James River basin),
  miscellaneous site.......... 357
Beaverdam Creek (Kanawha River basin)
    at Hillsville..........343,351
Beaverdam Creek (Tennessee River basin)
    at Damascus.......... 345
Beaverdam Swamp near Ark.......... 118
Bed load, definition of.......... 25
Bed load discharge, definition of.......... 25

Page
Bed material, definition of.......... 21
Bedford, Big Otter River near.......... 350
  Little Otter River at Rt. 122, near.......... 350
Belspring, Beck Creek near.......... 351
Bent Creek, James River at.......... 185
Berryville, Opequon Creek near.......... 40
Beulahville, Mattaponi River near..........132-135
Big Cedar Creek near Lebanon.......... 352
Big Moccasin Creek, at Collinwood..........346,352
  near Gate City.......... 352
Big Otter River, near Bedford.......... 350
  near Evington.......... 274
Big Reed Island Creek near Allisonia.......... 307
Big Rock, Levisa Fork at.......... 319
Big Sandy River basin, crest-stage
    partial-record stations in..........343-344
  discharge measurements at miscellaneous
    sites in..........360-362
  gaging-station records in..........319-326
  low-flow partial-record station in.......... 351
  reservoirs in..........322,325
Big Stone Gap, Powell River at.......... 347
Biochemical oxygen demand (BOD), definition of. 21
Biomass, definition of.......... 21
Birchleaf, Russell Fork near.......... 344
Blacks Creek near Mt. Airy.......... 343
Blackwater River (Chowan River basin), at Zuni. 248
  near Dendron.......... 247
  near Franklin..........249-251
  tributary near Holland.......... 342
Blackwater River (Roanoke River basin)
    near Rocky Mount.......... 265
Blue Springs Creek near Cedar Springs.......... 351
Blue-green algae, definition of.......... 24
Bluefield, Bluestone River above.......... 351
Bluestone River, above Bluefield.......... 351
  at Falls Mills.......... 318
Bordon Marsh Run near Boyce.......... 348
Bottom material, definition of.......... 21
Bowling Green, Mattaponi River near.......... 131
Boyce, Bordon Marsh Run near.......... 348
Boydton, Allen Creek near.......... 299
  Kerr Reservoir, John H., near.......... 298
Brink, Fountains Creek near.......... 258
Bristol, Beaver Creek at.......... 332
Bristow, Broad Run near.......... 84
Broad Run, at Buckland.......... 83
  near Bristow.......... 84
  near Warrenton.......... 339
Brookneal, Roanoke River at.......... 275
  Snake Creek near.......... 342
Brumley Creek at Brumley Gap..........345,352
Brumley Gap, Brumley Creek at..........345,352
Brush Creek, near Ivanhoe.......... 350
  near Riner.......... 351
Bubbling Spring, miscellaneous site.......... 356
Buchanan, James River at..........176-179
  Renick Run near.......... 340
Buck Mountain Creek near Free Union.......... 195
Buckhorn Swamp, miscellaneous sites.......... 360
Buckingham County, ground-water records in..... 370
Buckland, Broad Run at.......... 83
Buckskin Creek, miscellaneous site.......... 358
Buckton, Passage Creek near.......... 64
Buena Vista, Maury River near.......... 183
Buffalo Branch tributary near Christian.......... 338
Buffalo Creek near Hampden Sydney.......... 212
Buffalo River, near Tye River.......... 188
  tributary near Amherst.......... 341
Bull Run, Cub Run near.......... 86
Bull Run, near Catharpin.......... 85
  near Manassas Park.......... 87
Bullpasture River at Williamsville.......... 170
Burketown, North River near.......... 43
Burkeville, Nottoway River near.......... 239
Bush Mill Stream near Heathsville.......... 97

Preceding page blank

Page
Calfpasture River above Mill Creek, at Goshen.. 180
   at West Augusta............................ 349
Cameron Run at Alexandria...................... 339
Carter Run near Marshall....................... 339
Cartersville, James River at...................200-203
Cat Point Creek near Montross.................. 114
Catawba, Catawba Creek near.................... 175
Catawba Creek near Catawba..................... 175
Catharpin, Bull Run near....................... 85
Catlett, Cedar Run near........................ 81
Catoctin Creek at Taylorstown.................. 68
Cedar Creek (Potomac River basin) near Winchester.......................... 63
Cedar Creek (Tennessee River basin) near Meadowview.......................... 345
Cedar Grove Branch near Rockbridge Baths....... 341
Cedar Run, near Aden........................... 82
   near Catlett................................ 81
   near Warrenton.............................. 80
Cedar Springs, Blue Springs Creek near......... 351
   Cripple Creek at............................ 343
Cells/volume, definition of.................... 21
CFSM, explanation of........................... 14
Champlain, Farmers Hall Creek near............. 339
Charlottesville, Moores Creek near............. 341
   Rivanna River, South Fork, near............. 196
   Schenks Branch at........................... 341
Chatham, Bearskin Creek near................... 343
Chatham Hill, Lick Creek near.................. 345
Chemical oxygen demand (COD), definition of.... 21
Chesterfield, Falling Creek near...............207-208
Chestnut Creek at Galax........................ 304
Chickahominy River, above Walkers Dam, at Walkers...........................221-222
   miscellaneous sites.........................356-358
   near Providence Forge.......................219-220
Chilhowie, Button Creek near................... 345
   South Fork Holston River at Riverside near.. 327
Chlorophyll, definition of..................... 21
Chowan River basin, crest-stage partial-record stations in............................. 342
   discharge measurements at miscellaneous sites in................................358-360
   gaging-station records in...................239-258
   low-flow partial-record stations in......... 349
Christian, Buffalo Branch tributary near....... 338
Christians Creek near Fishersville............. 45
Chub Run near Stanley.......................... 338
Classification of surface-water quality records.............................. 15
Claytor Reservoir near Radford................. 309
Cleveland, Clinch River at..................... 335
Clifton Forge, Cowpasture River near........... 171
Clinch River, above Tazewell, TN............... 336
   at Cleveland................................ 335
   at Richlands................................ 334
   at Speers Ferry............................. 346
Clintwood, Cranes Nest River near.............. 324
Cochran, Great Creek near...................... 254
Coeburn, Guest River at........................346,352
Collection and computation of, ground-water levels....................... 18
   ground-water quality........................ 19
   stage and water-discharge records........... 11-12
Collinwood, Big Moccasin Creek at..............346,352
Colonial Heights (independent city), ground-water records in..................... 371
Color unit, definition of...................... 21
Contents, definition of........................ 21
Contrary Creek near Mineral.................... 119
Control, definition of......................... 21
Control structure, definition of............... 21
Conversion factors....................inside back cover
Cooperation, explanation of..................1-2,13,17
Cootes Store, North Fork Shenandoah River at... 57
Copper Creek near Gate City....................346,352
Council, Russell Fork at....................... 343
Cove Creek near Shelleys....................... 346
Covington, Dunlap Creek near................... 167
   Jackson River at Filtration Plant, at.......165-166
   Jackson River below Dunlap Creek, at........ 168
   Potts Creek near............................ 169
Cowpasture River, near Clifton Forge........... 171
   near Head Waters............................ 340
Craig Creek, at New Castle..................... 340
   at Parr..................................... 174
   near McDonalds Mill......................... 349
   tributary near New Castle................... 340

Page
Cranes Nest River near Clintwood............... 324
Crest-stage partial-record stations............338-347
Cripple Creek at Cedar Springs................. 343
Crooked Run near Mt. Jackson................... 338
Cub Creek at Phenix............................ 277
Cub Run near Bull Run.......................... 86
Cubic feet per second per square mile, definition of............................ 21
Cubic foot per second, definition of........... 21
Cubic-foot-per-second day, definition of....... 22
Culpeper, Mountain Run near.................... 106
   Pony Mountain Branch near................... 339
   Rapidan River near.......................... 109
Cypress Chapel, Cypress Swamp at............... 237
Cypress Swamp at Cypress Chapel................ 237

Daleville, Tinker Creek near................... 262
Damascus, Beaverdam Creek at................... 345
   South Fork, Holston River near..............328-330
Dan River, at Danville......................... 291
   at Paces....................................292-294
   at South Boston............................. 343
   near Francisco, NC.......................... 282
Danville, Dan River at......................... 291
   Sandy River near............................ 290
Data, accuracy of.............................. 14
   collection and computation of ground-water levels...................... 18
   collection and computation of ground-water quality..................... 19
   collection and computation of stage and water discharge.................... 11-12
   presentation, ground-water levels........... 18
      ground-water quality..................... 19
      stage and water-discharge................ 12-14
      surface-water quality.................... 16-17
Datum of ground-water levels, explanation of... 18
Dawn, Reedy Creek near......................... 340
Deep Creek near Mannboro....................... 215
Definition of terms............................ 20-28
Dendron, Blackwater River near................. 247
Denniston, Hyco River near..................... 297
Detrick, Passage Creek near.................... 348
Diascund Creek Reservoir, off pump station, near Walkers.............................225-227
   off Timber Swamp, near Walkers..............223-224
Diatoms, definition of......................... 24
Difficult Run near Great Falls................. 74
Dillwyn, Slate River near...................... 349
Dinwiddie, Stony Creek near.................... 242
Discharge, annual mean, at selected gaging stations........................... 3
Discharge at partial-record stations, low-flow stations, and miscellaneous sites........338-347
Discharge, definition of....................... 22
   instantaneous, definition of................ 22
   mean, definition of......................... 22
Discharge during 1985 water year compared with median discharge for period 1951-80 for four representative gaging stations...... 4
Dissolved, definition of....................... 22
Dissolved-solids concentration, definition of.. 22
Dooms, South River near........................ 48
Doswell, Little River near..................... 123
   North Anna River at Hart Corner near........ 122
   North Anna River near....................... 121
Downstream order system, explanation of........ 10
Doyles River near White Hall................... 341
Dragon Swamp at Mascot......................... 117
Drainage area, definition of................... 22
   explanation of, stage and water discharge... 13
   explanation of, surface-water quality....... 17
Drainage basin, definition of.................. 22
Dry mass, definition of........................ 21
Dry River at Rawley Springs.................... 348
Dublin, Thorne Springs Branch near.............343,351
Dugspur, Mira Fork tributary near.............. 343
Dumfries, Mary Bird Branch at mouth near....... 365
   Quantico Creek near......................... 88-89
   Quantico Creek, South Fork, at Orenda Road near......................... 366
   Quantico Creek, South Fork, near............ 94-95
   Quantico Creek, South Fork, tributary No. 5 near............................... 366
   Quantico Creek, South Fork, tributary No. 6 at mouth near...................... 366
   Quantico Creek tributary No. 1 at private road near........................ 366

Page

Dundee, Back Creek near ... 264
Dunlap Creek near Covington ... 167

Eden, NC, Smith River at ... 289
Elk Creek (James River basin), East Fork, at Belfast Trail near Natural Bridge ... 349
Elk Creek (Kanawha River basin) at Mt. Carmel Church, near Galax ... 350
Emporia, Meherrin River at ... 255-257
Estimated daily discharges, identification of ... 14
Evington, Big Otter River near ... 274
Explanation of ground-water level records ... 18-19
Explanation of stage and water-discharge records ... 11-15
Explanation of the records ... 10-19
Explanation of water-quality records ... 15-17
Extremes, explanation of:
   ground-water levels ... 19
   stage and water discharge ... 13
   surface-water quality ... 17

Factors for converting inch-pound units to International System of Units (SI) ... inside back cover
Fairfax County, ground-water records in ... 371
Falling Creek, near Chesterfield ... 207-208
   near Midlothian ... 342
Falling River near Naruna ... 276
Falling Spring, Jackson River at ... 162-164
Falls Creek tributary near Victoria ... 342
Falls Mills, Bluestone River at ... 318
Farmers Hall Creek near Champlain ... 339
Farmville, Appomattox River at ... 213
Favonia, Stony Fork near ... 350
Fecal coliform bacteria, definition of ... 20
   streptococcal bacteria, definition of ... 21
Ferncliff, Foster Creek near ... 339
Figure 1. Annual mean discharge at selected gaging stations ... 3
   2. Discharge during 1985 water year compared with median discharge for 4 representative gaging stations ... 4
   3. Monthly ground-water levels at key observation wells ... 7
   4. Annual median concentration of total phosphorus for period 1974-85 in James River at Cartersville, Va. ... 9
   5. System for numbering wells and miscellaneous sites ... 11
   6. Map of Virginia showing location of data collection on stations ... 32-33
   7. Map of Virginia showing location of high-flow partial-record stations ... 34-35
Fincastle, North Fork near ... 340
Fine Creek at Fine Creek Mills ... 204
Fine Creek Mills, Fine Creek at ... 204
Fishersville, Christians Creek near ... 45
Flannagan Reservoir, John W., near Haysi ... 325
Flat Creek near Amelia ... 342
Floyd, Pine Creek near ... 351
Foster Creek near Ferncliff ... 339
Fountains Creek near Brink ... 258
Fourmile Run at Alexandria ... 338
Francisco, NC, Dan River near ... 282
Franklin, Blackwater River near ... 249-251
Franklin (independent city), ground-water records in ... 372
Fredericksburg, Rappahannock River near ... 110-113
Free Union, Buck Mountain Creek near ... 195
   Moormans River near ... 194
Front Royal, South Fork Shenandoah River at ... 54-56
Fulks Run, North Fork Shenandoah River at ... 348

Gage, explanation of ... 13
Gage height (G.H.), definition of ... 22
Gaging station, definition of ... 22
Gaging-station records ... 38-337
Gainesboro, Back Creek at ... 348
Galax, Chestnut Creek at ... 304
   Elk Creek at Mt. Carmel Church near ... 350
   New River near ... 301-303
Garrisonville, Aquia Creek near ... 96
Gate City, Big Moccasin Creek near ... 352
   Copper Creek near ... 346,352
   North Fork Holston River near ... 346
Georges Creek near Gretna ... 295
Georges Fork, Pound River near ... 344

Page

Glade Creek at Grahams Forge ... 305
Glade Spring, Hall Creek near ... 345
Glen Lyn, New River at ... 314-317
Goose Creek (Potomac River basin), near Leesburg ... 73
   near Middleburg ... 72
Goose Creek (Roanoke River basin), near Huddleston ... 269
   North Fork, near Montvale ... 350
Goshen, Calfpasture River above Mill Creek, at. 180
Grahams Forge, Glade Creek at ... 305
   Reed Creek at ... 306
Graysonton, Little River at ... 310
Great Creek near Cochran ... 254
Great Dismal Swamp basin, gaging-station records in ... 237-238
Great Dismal Swamp, Lake Drummond in ... 238
Great Falls, Difficult Run near ... 74
Great Wicomico River basin, crest-stage partial-record station in ... 339
   gaging-station record in ... 97
Great Wicomico River near Horse Head ... 339
Green algae, definition of ... 24
Greenfield, Rockfish River near ... 189
Gretna, Georges Creek near ... 295
Groseclose, Middle Fork Holston River at ... 345
Grottoes, Middle River near ... 46
   White Oak Run near ... 50-51
Ground-water level records ... 368-389
Ground-water level records, explanation of ... 18-19
Ground-water levels at key observation wells ... 7
Ground-water quality records, explanation of ... 19
Guest River at Coeburn ... 346,352
Guy Creek near Nassawadox ... 38

Halifax, Banister River at ... 296
Halifax County, ground-water records in ... 373
Hall Creek near Glade Spring ... 345
Hampden Sydney, Buffalo Creek near ... 212
Haneytown Creek near Stanardsville ... 341
Hanover, Pamunkey River near ... 125-128
Hardness, definition of ... 22
Hardware River below Briery Run, near Scottsville ... 191
Harris Creek (James River basin) near Monroe ... 349
Harris Creek (York River basin) near Trevilians ... 340
Harriston, South River at ... 49
Hayfield, Hogue Creek near ... 39
Haysi, John W. Flannagan Reservoir near ... 325
   Pound River below Flannagan Dam, near ... 326
   Russell Fork at ... 321
Hazel River at Rixeyville ... 100
Head Waters, Cowpasture River near ... 340
Heathsville, Bush Mill Stream near ... 97
Helton Creek near Whitetop ... 350
Hillsville, Beaverdam Creek at ... 343,351
Hogue Creek near Hayfield ... 39
Holcombe Rock, James River at ... 184
Holiday Creek near Andersonville ... 209-211
Holland, Blackwater River tributary near ... 342
Holly Brook, Kimberling Creek near ... 351
Holston River:
   Middle Fork, at Groseclose ... 345
      at Seven Mile Ford ... 345,351
      near Meadowview ... 331
   North Fork, near Gate City ... 346
      near Saltville ... 333
   South Fork, at Riverside, near Chilhowie ... 327
      at Teas ... 344
      near Damascus ... 328-330
Hopewell (independent city), ground-water records in ... 373
Horse Head, Great Wicomico River near ... 339
Horsepen Branch at Richmond ... 342
Hoskins Creek near Tappahannock ... 115
Hot Springs, Jackson River below Gathright Dam, near ... 153-161
   Lake Moomaw near ... 152
Huddleston, Goose Creek near ... 269
Hunting Quarter Swamp, miscellaneous site ... 359
Hutton Creek near Chilhowie ... 345
Hyco River near Denniston ... 297
Hydrologic bench-mark network, definition of ... 9,22
Hydrologic conditions, summary of ... 2-9
Hydrologic unit, definition of ... 22

Identifying estimated daily discharge ... 14

Page
Independent Hill, South Fork
      Quantico Creek near........................ 90-91
Instantaneous discharge, definition of.......... 22
Instrumentation, explanation of................. 17,18
Introduction.................................... 1
Isle of Wight County, ground-water records in..374-375
Ivanhoe, Brush Creek near....................... 350

Jackson River, at Falling Spring...............162-164
   at Filtration Plant, at Covington...........165-166
   at Vanderpool................................ 348
   below Dunlap Creek, at Covington............. 168
   below Gathright Dam,
      near Hot Springs..........................153-161
   near Bacova..................................137-139
James City County,' ground-water records in..... 375
   quality of ground water in................... 389
James River, at Bent Creek...................... 185
   at Buchanan..................................176-179
   at Cartersville..............................200-203
   at Holcombs Rock............................. 184
   at Lick Run.................................. 172
   at Scottsville............................... 190
   near Richmond................................ 206
James River and Kanawha Canal near Richmond.... 205
James River basin, crest-stage partial-record
         stations in............................340-342
   discharge measurements at miscellaneous
      sites in..................................356-358
   gaging-station records in....................137-236
   low-flow partial-record stations in..........348-349
Jefferson, NC, South Fork New River near....... 300
Johns Creek at New Castle....................... 173
Jones Run, miscellaneous site................... 358
Jonesville, Powell River near................... 337
Joplin, Quantico Creek, South Fork,
      at Camp 5 near............................ 92-93
   Quantico Creek, South Fork, at
      Mawavi Road near.......................... 364
   Quantico Creek, South Fork, at
      park road near............................ 365
   Quantico Creek, South Fork, below
      tributary No. 1 near...................... 364
   Quantico Creek tributary No. 1, South Fork,
      at mouth near............................. 364
   Quantico Creek tributary No. 2, South Fork,
      at mouth near............................. 365
   Qauntico Creek tributary No. 3, South Fork,
      at mouth near............................. 365
   Quantico Creek tributary No. 4, South Fork,
      at mouth near............................. 365
Jordans Branch at Richmond...................... 342

Ka, Stony Creek at..............................346,352
Kanawha River basin, crest-stage partial-
      record stations in........................ 343
   gaging-station records in....................300-318
   low-flow partial-record stations in..........350-351
Kelsa, Knox Creek at............................344,351
Kerr Reservoir, John H., near Boydton.......... 298
Kerrs Creek near Lexington...................... 182
Kibler, Talbott Reservoir near.................. 281
Kibler, Townes Reservoir near................... 281
Kimberling Creek near Holly Brook............... 351
King and Queen County, ground-water records in. 376
King William County, ground-water records in...376-377
Knox Creek at Kelsa.............................344,351

Laboratory measurements......................... 16
Lacey Spring, Smith Creek near.................. 348
Lafayette, Roanoke River at..................... 260
Lake Drummond in Great Dismal Swamp............. 238
Lake Moomaw near Hot Springs.................... 152
Lakes and reservoirs:
   Claytor Reservoir near Radford............... 309
   Drummond, Lake, in Great Dismal Swamp........ 238
   Flannagan, John W., Reservoir near Haysi..... 325
   Kerr, John H., Reservoir near Boydton........ 298
   Leesville Lake near Leesville................ 268
   Moomaw Lake near Hot Springs................. 152
   Philpott Lake near Philpott.................. 285
   Pound River, North Fork, Lake near Pound..... 322
   Smith Mountain Lake near Penhook............. 266
   Talbott Reservoir near Kibler................ 281
   Townes Reservoir near Kibler................. 281
Lakeside Village, Willis River at............... 199
Land-surface datum, definition of............... 22
Latitude-longitude system, explanation of...... 10-11

Page
Laurel Fork, Laurel Fork near................... 351
Laurel Fork near Laurel  Fork................... 351
Laurel Mills, Battle Run near................... 99
Lawrenceville, Meherrin River near.............. 253
Lebanon, Big Cedar Creek near................... 352
Leesburg, Goose Creek near...................... 73
Leesville Lake near Leesville................... 268
Leesville, Leesville Lake near.................. 268
Levisa Fork, at Big Rock........................ 319
   below Fishtrap Dam, near Millard, KY......... 320
Lexington, Kerrs Creek near..................... 182
   South Buffalo Creek near..................... 349
Lick Creek near Chatham Hill.................... 345
Lick Run, James River at........................ 172
Lightfoot, West Branch Long Hill Swamp near.... 342
Little Back Creek near Sunrise..................146-148
Little Creek Reservoir:
   Infall near Norge............................ 228
   North near Norge............................. 229
   North Central near Norge.....................230-232
   Northeast near Norge......................... 233
   South Central near Norge.....................234-235
   West near Norge.............................. 236
Little Otter River at Rt. 122, near Bedford.... 350
Little River (Kanawha River basin)
      at Graysonton............................. 310
Little River (Tennessee River basin)
      at Wardell................................ 352
Little River (York River basin) near Doswell... 123
Location, explanation of:
   ground-water levels.......................... 18
   stage and water-discharge.................... 12
   surface-water quality........................ 17
Locust Dale, Robinson River near................ 108
Long Hill Swamp, West Branch, near Lightfoot... 342
Longdale Furnace, Pads Creek near............... 348
Loudoun County, ground-water records in........ 377
Louisa County, ground-water records in.........378-379
Louisa, Waldrop Creek near...................... 340
Lovingston, Tye River near...................... 186
Low-flow, partial-record stations...............348-352
Lunenburg, North Meherrin River near............ 252
Luray, South Fork Shenandoah River near........ 53
Lusters Gate, North Fork Roanoke River below... 350
Lynch River at Nortonsville..................... 341
Lynnwood, South Fork Shenandoah River near..... 52

Maiden Spring Creek near Thompson Valley....... 352
Manassas Park, Bull Run near.................... 87
Mannboro, Deep Creek near....................... 215
Map of Virginia showing location of
      data-collection stations.................. 32-33
Map of Virginia showing location of
      high-flow, partial-record stations........ 34-35
Marshall, Carter Run near....................... 339
Martinsville, Smith River at.................... 288
Mary Bird Branch, at mouth near Dumfries....... 365
   miscellaneous site........................... 355
Mascot, Dragon Swamp at......................... 117
Mason Creek at Mason Cove....................... 350
Mason Cove, Mason Creek at...................... 350
Matoaca, Appomattox River at....................216-218
Mattaponi River, near Beulahville...............132-135
   near Bowling Green........................... 131
Mattoax, Appomattox River at.................... 214
Maury River, at Rockbridge Baths................ 181
   near Buena Vista............................. 183
McDonalds Mill, Craig Creek near................ 349
Meadowview, Cedar Creek near.................... 345
   Middle Fork Holston River near............... 331
Mean concentration, definition of............... 25
Mean discharge, definition of................... 22
Mean flow, annual, for 6 representative
      gaging stations........................... 6
   April monthly, and flow statistics for
      5 representative gaging stations.......... 5
   March monthly, and flow statistics for
      4 representative gaging stations.......... 5
Measurements, on-site........................... 15-16
   laboratory................................... 16
Measuring point, definition of.................. 22
Mechums River near White Hall................... 193
Meherrin River, at Emporia......................255-257
   near Lawrenceville........................... 253
   near Northview............................... 349
Metamorphic stage, definition of................ 22
Methylene blue active substance (MBAS),
      definition of............................. 22

Page
Micrograms per gram, definition of.............. 23
Micrograms per liter, definition of............. 23
Middle River, at Trimbles Mills, near Swoope... 348
   near Grottoes................................ 46
   near Verona.................................. 44
Middleburg, Goose Creek near.................... 72
Midlothian, Falling Creek near.................. 342
Millard, KY, Levisa Fork below Fishtrap
      Dam, near................................. 320
Milligrams of carbon per area or volume per
      unit of time for periphyton, macrophytes,
      and phytoplankton, definition of.......... 24
Milligrams of oxygen per area or volume per
      unit of time for periphyton, macrophytes,
      and phytoplankton, definition of.......... 25
Milligrams per liter, definition of............. 23
Millville, WV, Shenandoah River at.............. 65-67
Mineral, Contrary Creek near.................... 119
Mira Fork tributary near Dugspur................ 343
Miscellaneous sites, analyses of samples at....364-366
   discharge measurements at...................353-363
   numbering system for......................... 10-11
Monroe, Harris Creek near....................... 349
Montgomery County, ground-water records in...... 379
Montross, Cat Point Creek near.................. 114
Montvale, North Fork Goose Creek near........... 350
Moomaw Lake near Hot Springs.................... 152
Moores Creek near Charlottesville............... 341
Moormans River near Free Union.................. 194
Mount Jackson, North Fork Shenandoah River at.. 59
Mountain Grove, Back Creek near................149-151
Mountain Run near Culpeper...................... 106
Mt. Airy, Blacks Creek near..................... 343
Mt. Jackson, Crooked Run near................... 338
Muddy Run near Stanardsville.................... 341
My Ladys Swamp near Saluda...................... 339

Narrows, Wolf Creek near........................ 313
Naruna, Falling River near...................... 276
Nassawadox Creek basin, discharge measurements
      at miscellaneous site in.................. 353
   gaging-station record in..................... 38
Nassawadox Creek, miscellaneous site............ 353
Nassawadox, Guy Creek near...................... 38
National Geodetic Vertical Datum
      of 1929 (NGVD), definition of............. 23
National stream-quality accounting network
      (NASQAN), definition of................... 9,23
National Technical Information Center........... 1
National trends network, definition of.......... 9,23
Natural Bridge, East Fork Elk Creek,
      at Belfast Trail near..................... 349
Natural substrate, definition of................ 26
Nebletts Mill Run, miscellaneous site........... 359
Neck Creek near Belspring....................... 351
Nelson County, ground-water records in.......... 380
Nettleridge, South Mayo River near.............. 283
New Castle, Craig Creek at...................... 340
   Craig Creek tributary near................... 340
   Johns Creek at............................... 173
New Kent County, ground-water records in........ 380
New Market, Smith Creek near.................... 58
New River, at Allisonia......................... 308
   at Glen Lyn.................................314-317
   at Radford................................... 311
   near Galax..................................301-303
   South Fork, near Jefferson, NC............... 300
Newport, Sinking Creek near..................... 351
Niagara, Roanoke River at....................... 263
Norfolk (independent city), ground-water
      records in................................ 380
Norge, Little Creek Reservoir infall near....... 228
   Little Creek Reservoir (north) near.......... 229
   Little Creek Reservoir (north central) near.230-232
   Little Creek Reservoir (northeast) near...... 233
   Little Creek Reservoir (south central) near.234-235
   Little Creek Reservoir (west) near........... 236
North Anna River, at Hart Corner near Doswell.. 122
   near Doswell................................. 121
   near Partlow................................. 120
North Atlantic Slope basins, gaging-station
      records in................................ 38-136
North Fork near Fincastle....................... 340
North Mayo River near Spencer................... 284
North Meherrin River near Lunenburg............. 252
North River (Potomac River basin),
      near Burketown............................ 43
   near Stokesville............................. 42

Page
Northview, Meherrin River near.................. 349
Nortonsville, Lynch River at.................... 341
Nottoway River, miscellaneous sites............358-359
   near Burkeville.............................. 239
   near Rawlings................................ 240
   near Sebrell................................243-245
   near Stony Creek............................. 241
Nottoway Swamp, miscellaneous site.............. 360
Numbering system for wells and miscellaneous
      sites..................................... 10-11

Ohio River basin, gaging-station records in....300-337
On-site measurements and sample collection,
      surface-water quality..................... 15-16
Opequon Creek near Berryville................... 40
Orange County, ground-water records in.......... 381
Organic mass, definition of..................... 21
Organism, definition of......................... 23
Organism count/area, definition of.............. 23
Organism count/volume, definition of............ 23
Organism total count, definition of............. 23
Other records available, explanation of......... 15

Paces, Dan River at............................292-294
Pads Creek near Longdale Furnace................ 348
Palmyra, Rivanna River at....................... 198
Pamunkey River near Hanover....................125-128
Parameter code, definition of................... 23
Parr, Craig Creek at............................ 174
Partial-record station, definition of........... 23
Partial-record stations, analyses of samples...364-366
   discharge measurements made at..............338-347
Particle-size classification, definition of.... 24
Particle size, definition of.................... 23
Partlow, North Anna River near.................. 120
Passage Creek, near Buckton..................... 64
   near Detrick................................. 348
Penhook, Smith Mountain Lake near............... 266
Pennington Gap, North Fork Powell River at..... 347
Percent composition, definition of.............. 24
Period of record, explanation of:
   ground-water levels.......................... 19
   stage and water discharge.................... 13
   surface-water quality........................ 17
Periphyton, definition of....................... 24
Pesticides, definition of....................... 24
Phenix, Cub Creek at............................ 277
Philpott Lake near Philpott..................... 285
Philpott, Philpott Lake near.................... 285
   Smith River near............................. 286
Phytoplankton, definition of.................... 24
Piankatank River basin, crest-stage
      partial-record station in................. 339
   gaging-station record in..................... 117
Picocurie, definition of........................ 24
Pigg River near Sandy Level..................... 267
Pine Creek near Floyd........................... 351
Piney River at Piney River...................... 187
Piney River, Piney River at..................... 187
Piscataway Creek near Tappahannock.............. 116
Plankton, definition of......................... 24
Po River near Spotsylvania...................... 130
Point of Rocks, MD, Potomac River at............ 69-71
Pony Mountain Branch near Culpeper.............. 339
Possum Run, miscellaneous site.................. 358
Potomac River, at Chain Bridge at
      Washington, DC............................ 76-78
   at Point of Rocks, MD........................ 69-71
   near Washington, DC.......................... 75
Potomac River basin, crest-stage partial-
      record stations in.......................338-339
   discharge measurements at miscellaneous
      sites in.................................353-356
   gaging-station records in.................... 39-96
   low-flow partial-record stations in.......... 348
   water-quality analyses made in..............364-366
Potts Creek near Covington...................... 169
Pound, Pound River above Indian Creek, at...... 344
   Pound River below Bold Camp Creek, at....... 344
   Pound River Lake, North Fork, at............ 322
   Pound River, North Fork, at................. 323
Pound River, above Indian Creek, at Pound...... 344
   below Bold Camp Creek, at Pound.............. 344
   below Flannagan Dam, near Haysi.............. 326
   near Georges Fork............................ 344
   North Fork, at Pound......................... 323
Pound River Lake, North Fork, at Pound......... 322
Powder Mill Creek at Rocky Mount................ 342

Page
Powell River, at Big Stone Gap.................. 347
  near Jonesville.............................. 337
  North Fork, at Pennington Gap................ 347
Powells Creek near Turbeville.................. 343
Preface........................................ iii
Primary productivity, definition of............ 24
Prince William County, ground-water records in.........381-382
Proffit, North Fork Rivanna River near......... 197
Providence Forge, Chickahominy River near......219-220
Publications on techniques of water-resources investigations......... 28-30
Pughs Run near Woodstock....................... 338
Pulaski County, ground-water records in........ 382

Quantico Creek:
  miscellaneous sites..........................353-356
  near Dumfries................................ 88-89
  South Fork, at Camp 5 near Joplin............ 92-93
    at Mawavi Road near Joplin................. 364
    at Orenda Road near Dumfries............... 366
    at Park Road near Joplin................... 365
    below tributary 1 near Joplin.............. 364
    miscellaneous sites........................354-356
    near Dumfries.............................. 94-95
    near Independent Hill...................... 90-91
    tributaries, miscellaneous sites...........354-356
    tributary 1 at mouth near Joplin........... 364
    tributary 2 at mouth near Joplin........... 365
    tributary 3 at mouth near Joplin........... 365
    tributary 4 at mouth near Joplin........... 365
    tributary 5 near Dumfries.................. 366
    tributary 6 at mouth near Dumfries......... 366
  tributaries, miscellaneous sites.............353-356
  tributary 1 at private road near Dumfries... 366

Raccoon Creek, miscellaneous site.............. 359
Radford, Claytor Reservoir near................ 309
  New River at................................. 311
Radiochemical program, definition of........... 9,25
Randolph, Roanoke River at.....................278-280
Rapidan River, near Culpeper................... 109
  near Ruckersville............................ 107
Rappahannock River, at Remington...............101-105
  near Fredericksburg..........................110-113
  near Warrenton............................... 98
Rappahannock River basin, crest-stage partial-record stations in.......... 339
  gaging-station records in.................... 98-116
Rawley Springs, Dry River at................... 348
Rawlings, Nottoway River near.................. 240
Records, accuracy of........................... 14
  arrangement of surface-water quality......... 15
  collected by the State of Virginia........... 2
  explanation of, ground-water levels.......... 18-19
    ground-water quality....................... 19
    stage and water discharge.................. 11-15
    surface-water quality...................... 15-17
  other available.............................. 15
Recoverable from bottom material, definition of.......... 25
Reddy Creek near Spring Mills.................. 350
Reed Creek at Grahams Forge.................... 306
Reedy Creek near Dawn.......................... 340
Remarks codes..................................17,37,367
Remarks, explanation of:
  ground-water levels.......................... 18
  stage and water discharge.................... 13
  surface-water quality........................ 17
Remington, Rappahannock River at...............101-105
Renick Run near Buchanan....................... 340
Reservoirs, See Lakes and reservoirs
  in Big Sandy River basin.....................322,325
  in James River basin......................... 152
  in Kanawha River basin....................... 309
  in Roanoke River basin...........266,268,281,285,298
Return period, definition of................... 25
Revised records, explanation of................ 13
Revisions, stage and water discharge records... 13-14
  surface-water quality records................ 17
Richlands, Clinch River at..................... 334
Richmond, Horsepen Branch at................... 342
  James River and Kanawha Canal near........... 205
  James River near............................. 206
  Jordans Branch at............................ 342
Right Hand Fork near Appomattox................ 342
Riner, Brush Creek near........................ 351
Rivanna River, at Palmyra...................... 198
  North Fork, near Proffit..................... 197
  South Fork, near Charlottesville............. 196
Rixeyville, Hazel River at..................... 100
Roanoke (independent city), ground-water records in.......... 382
Roanoke River, at Altavista....................270-273
  at Brookneal................................. 275
  at Lafayette................................. 260
  at Niagara................................... 263
  at Randolph..................................278-280
  at Roanoke................................... 261
  North Fork, below Lusters Gate............... 350
  South Fork, near Shawsville.................. 259
Roanoke River basin, crest-stage partial-record stations in..........342-343
  gaging-station records in....................259-299
  low-flow partial-record stations in.......... 350
Roanoke, Roanoke River at...................... 261
Robinson River near Locust Dale................ 108
Rockbridge Baths, Cedar Grove Branch near...... 341
  Maury River at............................... 181
Rockbridge County, ground-water records in..... 383
Rockfish River near Greenfield................. 189
Rockingham County, ground-water records in..... 383
Rocky Mount, Blackwater River near............. 265
  Powder Mill Creek at......................... 342
Rowanty Creek, miscellaneous site.............. 359
Ruckersville, Rapidan River near............... 107
Runoff in inches, definition of................ 25
Russell Fork, at Bartlick...................... 344
  at Birchleaf................................. 344
  at Council................................... 343
  at Haysi..................................... 321

Saltville, North Fork Holston River near....... 333
Saluda, My Ladys Swamp near.................... 339
Sample collection, surface-water quality, explanation of.......... 15-16
Sandy Level, Pigg River near................... 267
Sandy River near Danville...................... 290
Sappony Creek at Rt. 681, near Stony Creek..... 349
Schenks Branch at Charlottesville.............. 341
Schiminoe Creek, miscellaneous site............ 358
Scottsville, Hardware River below Briery Run, near.......... 191
  James River at............................... 190
Sebrell, Assamoosick Swamp near................ 246
  Nottoway River near..........................243-245
Sediment, definition of........................ 25
  explanation of............................... 16
Selected USGS reports on water resources
  in Virginia.................................. 30-31
Seven-day, 10-year low flow, definition of..... 26
Seven Mile Ford, Middle Fork Holston River at..345,351
Shawsville, South Fork Roanoke River near...... 259
Shelleys, Cove Creek near...................... 346
Shenandoah River, at Millville, WV............. 65-67
  North Fork, at Cootes Store.................. 57
    at Fulks Run............................... 348
    at Mount Jackson........................... 59
    near Strasburg............................. 60-62
  South Fork, at Front Royal................... 54-56
    near Luray................................. 53
    near Lynnwood.............................. 52
Sinking Creek near Newport..................... 351
Slate River, near Arvonia...................... 192
  near Dillwyn................................. 349
Smith Creek, near Lacey Spring................. 348
  near New Market.............................. 58
Smith Mountain Lake near Penhook............... 266
Smith River, at Bassett........................ 287
  at Eden, NC.................................. 289
  at Martinsville.............................. 288
  near Philpott................................ 286
Snake Creek near Brookneal..................... 342
Sodium-adsorption-ratio, definition of......... 26
Solute, definition of.......................... 26
South Anna River near Ashland.................. 124
South Atlantic Slope basins, gaging-station records in..........137-299
South Boston, Dan River at..................... 343
South Buffalo Creek near Lexington............. 349
South Mayo River near Nettleridge.............. 283
South River (James River basin) near Steeles Tavern..........341,349
South River (Potomac River basin), at Harriston.......... 49
  miscellaneous site........................... 353
  near Dooms................................... 48
  near Waynesboro.............................. 47
Southampton County, ground-water records in.... 384
Special networks and programs.................. 9-10

Page
Specific conductance, definition of.............. 26
Speers Ferry, Clinch River at.................... 346
Spencer, North Mayo River near................... 284
Spotsylvania, Po River near...................... 130
Spreading Springs Branch at Springwood........... 349
Spring Creek near Abingdon.......................345,351
Spring Grove, Bailey Branch tributary at......... 342
Spring Mills, Beddy Creek near................... 350
Springwood, Spreading Springs Branch at.......... 349
Stage and water discharge records, explanation of.............................. 11
Stage-discharge relation, definition of.......... 26
Stanardsville, Haneytown Creek near.............. 341
  Muddy Run near................................. 341
Stanley, Chub Run near........................... 338
Station identification number, explanation of.. 10
Steeles Tavern, South River near.................341,349
Stockton Creek near Afton........................ 341
Stokesville, North River near.................... 42
Stony Creek (Chowan River basin), miscellaneous site......................... 359
  near Dinwiddie................................. 242
Stony Creek (Tennessee River basin) at Ka.......346,352
Stony Creek, Nottoway River near................. 241
  Sappony Creek at Rt. 681, near................. 349
Stony Fork near Pavonia.......................... 350
Stony Run, miscellaneous site.................... 357
Strasburg, North Fork Shenandoah River near.... 60-62
Streamflow, definition of........................ 26
Studley, Totopotomoy Creek near.................. 129
Sturgeon Creek, miscellaneous site............... 358
Substrate, definition of......................... 26
  artificial, definition of...................... 26
  natural, definition of......................... 26
Suffolk (independent city), ground-water records in..................................384-386
Summary of hydrologic conditions................. 2-9
Sunrise, Back Creek at..........................143-145
  Back Creek near...............................140-142
  Little Back Creek near........................146-148
Surface area, definition of...................... 26
Surface-water quality records, explanation of.. 15-17
Surficial bed material, definition of............ 26
Surry County, ground-water records in............ 387
Suspended, definition of......................... 26
Suspended recoverable, definition of............. 26
Suspended sediment, definition of................ 25
Suspended-sediment concentration, definition of................................ 25
Suspended-sediment discharge, definition of.... 25
Suspended-sediment load, definition of........... 25
Suspended, total, definition of.................. 26-27
Sweet Chalybeate, Sweet Springs Creek tributary at................................ 340
Sweet Springs Creek tributary at Sweet Chalybeate............................ 340
Swift Creek, miscellaneous site.................. 356
Swoope, Middle River at Trimbles Mill near....... 348
System for numbering wells and miscellaneous sites....................................... 10-11

Talbott Reservoir near Kibler.................... 281
Tappahannock, Hoskins Creek near................. 115
  Piscataway Creek near.......................... 116
Taxonomy, definition of.......................... 27
Taylorstown, Catoctin Creek at................... 68
Tazewell, TN, Clinch River above................. 336
Teas, South Fork Holston River at................ 344
Techniques of water-resources investigations, publications on............................ 28-30
Temperature, water, explanation of............... 16
Tennessee River basin, crest-stage partial-record stations in..........................344-347
  discharge measurements at miscellaneous sites in.................................. 363
  gaging-station records in.....................327-337
  low-flow partial-record stations in...........351-352
Thermograph, definition of....................... 27
Thompson Creek near Bath Alum.................... 348
Thompson Valley, Maiden Spring Creek near....... 352
Thorne Springs Branch near Dublin...............343,351
Three Creek, miscellaneous site.................. 359
Time-weighted average, definition of............. 27
Tinker Creek near Daleville...................... 262
Toano, Ware Creek near........................... 136
Toe Ink Swamp, miscellaneous site................ 357
Tons per acre-foot, definition of................ 27
Tons per day, definition of...................... 27

Page
Total, definition of............................. 27
Total discharge, definition of................... 27
Total, recoverable, definition of................ 27
Total sediment discharge, definition of.......... 25
Total sediment load, definition of............... 25
Totopotomoy Creek near Studley................... 129
Townes Reservoir near Kibler..................... 281
Trends in discharge, annual suspended-sediment load, specific conductance, and temperature at 4 representative gaging stations............ 8
Trevilians, Harris Creek near.................... 340
Tritium network, definition of................... 10,27
Turbeville, Powells Creek near................... 343
Tye River, Buffalo River near.................... 108
Tye River near Lovington......................... 106

Upham Brook, miscellaneous site.................. 357

Vanderpool, Jackson River at..................... 348
Verona, Middle River near........................ 44
Victoria, Falls Creek tributary near............. 342
Volney, Wilson Creek at.......................... 350

Waldrop Creek near Louisa........................ 340
Walker Creek at Bane............................. 312
Walkers, Chickahominy River above Walkers Dam, at.........................................221-222
  Diascund Creek Reservoir off pump station, near.......................................225-227
  Diascund Creek Reservoir off Timber Swamp, near.......................................223-224
Waqua Creek, miscellaneous site.................. 358
Wardell, Little River at......................... 352
Ware Creek near Toano............................ 136
Ware River basin, gaging-station record in...... 118
Warrenton, Broad Run near........................ 339
  Cedar Run near................................. 80
  Rappahannock River near........................ 98
Washington, DC, Potomac River at Chain Bridge near....................................... 76-78
  Potomac River near............................. 75
Water-discharge records and stage, explanation of.............................. 11-15
Water-level records, explanation of.............. 18-19
Water-quality analyses of samples collected at partial-record, special study, and miscellaneous sites.........................364-366
Water-quality records, explanation of............ 15-17
Water-resources data for Virginia, 1985, explanation of.............................. 1-31
Water-resources investigations, publications on techniques of.......................... 28-30
Water-resources reports, selected, in Virginia. 30-31
Water temperature, explanation of................ 16
Water year, definition of........................ 27
WATSTORE data, access to......................... 19-20
Waynesboro, South River near..................... 47
WDR (Water Data Reports), definition of.......... 28
Weighted average, definition of.................. 28
Well characteristics, explanation of............. 18
Well descriptions and ground-water levels:
  Accomack County................................ 368
  Albemarle County............................... 368
  Appomattox County.............................368-369
  Arlington County............................... 369
  Buckingham County.............................. 370
  Colonial Heights (independent city)............ 371
  Fairfax County................................. 371
  Franklin (independent city).................... 372
  Halifax County................................. 373
  Hopewell (independent city).................... 373
  Isle of Wight County..........................374-375
  James City County.............................. 375
  King and Queen County.......................... 376
  King William County...........................376-377
  Loudoun County................................. 377
  Louisa County.................................378-379
  Montgomery County.............................. 379
  Nelson County.................................. 380
  New Kent County................................ 380
  Norfolk (independent city)..................... 380
  Orange County.................................. 381
  Prince William County.........................381-382
  Pulaski County................................. 382
  Roanoke (independent city)..................... 382
  Rockbridge County.............................. 383
  Rockingham County.............................. 383

Page

Well descriptions and ground-water levels (continued):
  Southampton County.......................... 384
  Suffolk (independent city)..................384-386
  Surry County................................ 387
  Westmoreland County.........................387-388
  York County................................. 388
Wells, numbering system for, explanation of.... 10-11
West Augusta, Calfpasture River at............. 349
Westmoreland County, ground-water records in...387-388
Wet mass, definition of........................ 21
White Hall, Doyles River near.................. 341
  Mechums River near........................... 193
White Oak Run near Grottoes.................... 50-51
White Oak Swamp, miscellaneous site............ 357
Whitetop, Belton Creek near.................... 350

Page

Williamsville, Bullpasture River at............ 170
Willis River at Lakeside Village............... 199
Wilson Creek at Volney......................... 350
Winchester, Abrams Creek near.................. 41
  Cedar Creek near............................. 63
Wolf Creek near Narrows........................ 313
Woodstock, Pughs Run near...................... 338
WSP (Water-Supply Paper), definition of........ 28

York County, ground-water records in........... 388
York River basin, crest-stage partial-record
    stations in................................339-340
  gaging-station records in...................119-136

Zooplankton, definition of..................... 24
Zuni, Blackwater River at...................... 248

•U.S. GOVERNMENT PRINTING OFFICE: 1986-627-758

October 1, 1978

## FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

| Multiply inch-pound units | By | To obtain SI units |
|---|---|---|
| | *Length* | |
| inches (in) | $2.54 \mathrm{x} 10^{1}$ | millimeters (mm) |
| | $2.54 \mathrm{x} 10^{-2}$ | meters (m) |
| feet (ft) | $3.048 \mathrm{x} 10^{-1}$ | meters (m) |
| miles (mi) | $1.609 \mathrm{x} 10^{0}$ | kilometers (km) |
| | *Area* | |
| acres | $4.047 \mathrm{x} 10^{3}$ | square meters ($m^2$) |
| | $4.047 \mathrm{x} 10^{-1}$ | square hectometers ($hm^2$) |
| | $4.047 \mathrm{x} 10^{-3}$ | square kilometers ($km^2$) |
| square miles ($mi^2$) | $2.590 \mathrm{x} 10^{0}$ | square kilometers ($km^2$) |
| | *Volume* | |
| gallons (gal) | $3.785 \mathrm{x} 10^{0}$ | liters (L) |
| | $3.785 \mathrm{x} 10^{0}$ | cubic decimeters ($dm^3$) |
| | $3.785 \mathrm{x} 10^{-3}$ | cubic meters ($m^3$) |
| million gallons | $3.785 \mathrm{x} 10^{3}$ | cubic meters ($m^3$) |
| | $3.785 \mathrm{x} 10^{-3}$ | cubic hectometers ($hm^3$) |
| cubic feet ($ft^3$) | $2.832 \mathrm{x} 10^{1}$ | cubic decimeters ($dm^3$) |
| | $2.832 \mathrm{x} 10^{-2}$ | cubic meters ($m^3$) |
| acre-feet (acre-ft) | $1.233 \mathrm{x} 10^{3}$ | cubic meters ($m^3$) |
| | $1.233 \mathrm{x} 10^{-3}$ | cubic hectometers ($hm^3$) |
| | $1.233 \mathrm{x} 10^{-6}$ | cubic kilometers ($km^3$) |
| | *Flow* | |
| cubic feet per second ($ft^3/s$) | $2.832 \mathrm{x} 10^{1}$ | liters per second (L/s) |
| | $2.832 \mathrm{x} 10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $2.832 \mathrm{x} 10^{-2}$ | cubic meters per second ($m^3/s$) |
| gallons per minute (gal/min) | $6.309 \mathrm{x} 10^{-2}$ | liters per second (L/s) |
| | $6.309 \mathrm{x} 10^{-2}$ | cubic decimeters per second ($dm^3/s$) |
| | $6.309 \mathrm{x} 10^{-5}$ | cubic meters per second ($m^3/s$) |
| million gallons per day | $4.381 \mathrm{x} 10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $4.381 \mathrm{x} 10^{-2}$ | cubic meters per second ($m^3/s$) |
| | *Mass* | |
| tons (short) | $9.072 \mathrm{x} 10^{-1}$ | megagrams (Mg) or metric tons |